Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules Regarding	)	WT Docket No. 04-344
Maritime Automatic Identification Systems	)	

SECOND REPORT AND ORDER

Adopted: September 15, 2008 **Released: September 19, 2008**

By the Commission:

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Second Report and Order* in WT Docket No. 04-344, we adopt additional measures for domestic implementation of Automatic Identification Systems (AIS), an advanced marine vessel tracking and navigation technology that can significantly enhance our Nation's homeland security as well as maritime safety. The decisions we make here build on the Commission's earlier efforts in the *Report and Order* in this proceeding,[1] and are consistent with the overriding objective of this proceeding,

[1] *See* Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems, *Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion and Order*, WT Docket No. (continued….)

as stated in the *Report and Order*, to "ensure that AIS is deployed widely, quickly, reliably, and cost-effectively, and in a manner that will maximize its capabilities."[2] Specifically, in this *Second Report and Order*, we (a) designate maritime VHF Channel 87B for exclusive AIS use throughout the Nation, while providing a replacement channel for those geographic licensees that are currently authorized to use Channel 87B in an inland VHF Public Coast (VPC) service area (VPCSA); (b) determine that only Federal Government (Federal) entities should have authority to operate AIS base stations, obviating any present need for the Commission to adopt licensing, operational, or equipment certification rules for such stations; and (c) require that Class B[3] AIS shipborne devices comply with the international standard for such equipment, while also mandating additional safeguards to better ensure the accuracy of AIS data transmitted from Class B devices. These measures will facilitate the establishment of an efficient and effective domestic AIS network, and will optimize the navigational and homeland security benefits that AIS offers.

II. BACKGROUND

2. AIS is a "maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities."[4] The IMO requires vessels subject to the International Convention for Safety of Life at Sea (SOLAS) to carry AIS equipment,[5] and the United States Coast Guard (USCG or Coast Guard), acting pursuant to statutory directive,[6] has imposed an AIS carriage requirement on additional classes of vessels.[7] The ITU international standard for AIS equipment[8] has been incorporated by reference in Part 80 of the Commission's Rules as the basis

(Continued from previous page)
04-344 & PR Docket No. 92-257, 21 FCC Rcd 8892 (2006) (*Report and Order*, *Further Notice*, and *Fourth MO&O*, respectively).

[2] *See Report and Order*, 21 FCC Rcd at 8907 ¶ 23.

[3] Class A AIS devices are those currently certified by the Commission for compliance with international and Coast Guard carriage requirements. Class B AIS devices, which have somewhat reduced functionality vis-à-vis Class A devices, are intended primarily for voluntary carriage by recreational and other non-compulsory vessels.

[4] *See* 47 C.F.R. § 80.5. For more detailed information on the history of AIS, *see Report and Order*, 21 FCC Rcd at 8894-8901 ¶¶ 4-11.

[5] *See* Amendments to the International Convention for the Safety of Life at Sea, 1974, Chapter V, Regulation 19.2.4, "Carriage requirements for shipborne navigational systems and equipment," as amended by IMO Resolution MSC.99(73) – 2000 Amendments to the Safety of Life at Sea 1974 Convention, as Amended – London, 5 December 2000 (*IMO AIS Carriage Requirements*). The *IMO AIS Carriage Requirements* apply to all ships of 300 gross tons or more on international voyages, cargo ships of 500 gross tons or more, and passenger ships that carry more than twelve passengers, irrespective of size.

[6] *See* 46 U.S.C. § 70114.

[7] Currently, the Coast Guard AIS carriage requirements apply to, *inter alia*, self-propelled vessels of 65 feet or more in length, other than passenger and fishing vessels, in commercial service and on an international voyage; passenger vessels of 150 gross tonnage or more; all tankers, regardless of tonnage; and vessels, other than passenger vessels or tankers, of 300 gross tonnage or more. *See* 33 C.F.R. § 164.46. Separate AIS carriage requirements apply to vessels transiting the Saint Lawrence Seaway. *See* 33 C.F.R. § 401.20.

[8] *See* Recommendation ITU-R M.1371-1, "Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band," with Annexes (2001). (continued….)

for certifying Class A AIS equipment.[9]

3. At the World Radiocommunications Conference of 1997 (WRC-97), the ITU allocated VHF maritime Channels 87B (161.975 MHz) and 88B (162.025 MHz) for AIS use in international waters, designating Channel 87B as AIS1 and Channel 88B as AIS2.[10] The ITU's AIS equipment standard (and by extension the Commission's) is accordingly based on the use of those channels for AIS. Notwithstanding the international designation of Channels 87B and 88B for AIS, however, the ITU *Radio Regulations* leave member Administrations with discretion to designate alternative channels for AIS within their territorial waters.[11] In the United States, Channel 87B is a non-Federal channel that had been designated by the Commission for VPC stations,[12] while Channel 88B is a Federal channel, and thus under the jurisdiction of the National Telecommunications and Information Administration (NTIA).

4. In the *Report and Order*, adopted July 20, 2006, the Commission designated Channel 87B for exclusive AIS use in the nine maritime VPCSAs,[13] and Channel 88B for exclusive AIS use nationwide.[14] The Commission reasoned that designating the same channels for AIS in the United States that are used for AIS not only in international waters but virtually globally would permit a seamless worldwide AIS network.[15] This, in turn, would facilitate Coast Guard coordination with other nations in

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See also IMO Resolution A.917(22), "Guidelines for the On Board Operational Use of Shipborne Universal Automatic Identification System."

[9] *See* 47 C.F.R. § 80.1101(c)(2). In addition to ITU-R M.1371-1, applications for certification of Class A AIS ship station equipment must meet the following standards: IMO Resolution MSC.74(69), IEC 61162-1, IEC 61162-100, and IEC 61993-2. *See id*.; IMO Resolution A.917(22), "Guidelines for the On Board Operational Use of Shipborne Universal Automatic Identification System" (adopted Nov. 29, 2001). The Commission decided to incorporate by reference the international standards for certifying Class A AIS equipment in 2004, in the *Sixth Report and Order* in PR Docket No. 92-257. *See* Amendments of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications, *Second Report and Order, Sixth Report and Order, and Second Further Notice of Proposed Rule Making*, WT Docket No. 00-48 & PR Docket No. 92-257, 19 FCC Rcd 3120, 3155 ¶ 67 (2004), *aff'd*, *Fourth MO&O*, 21 FCC Rcd at 8936-39 ¶¶ 65-67.

[10] *See* WRC-97 Final Acts (amending ITU *Radio Regulations* App. S18).

[11] *Id*.

[12] *See* 47 C.F.R. § 80.371(c)(1)(i) (2005). VPC stations traditionally provided public correspondence service to vessels, interconnecting ship radio stations to the public switched telephone network on a common carrier basis. *See* 47 C.F.R. § 80.5; *see also* Amendment of the Commission's Rules Concerning Maritime Communications, *Notice of Proposed Rule Making and Notice of Inquiry*, PR Docket No. 92-257, 7 FCC Rcd 7863, 7864 ¶ 7 (1992). In recent years, the Commission has provided VPC stations with flexibility to expand their service offerings. *See, e.g.*, 47 C.F.R. § 20.9(b) (permitting VPC geographic licensees to offer private radio service to vessels); 47 C.F.R. § 80.123 (authorizing VPC stations to provide public correspondence service to units on land); MariTEL, Inc. and Mobex Network Services LLC, Petitions for Rule Making to Amend the Commission's Rules to Provide Additional Flexibility for AMTS and VHF Public Coast Station Licensees, *Report and Order*, WT Docket No. 04-257, 22 FCC Rcd 8971 (2007) (*Coast Station Flexibility Order*) (authorizing VPC geographic licensees to provide private radio service to units on land).

[13] For purposes of VHF Public Coast Service geographic area licensing, the Commission established nine licensing regions near major waterways, *i.e.*, the maritime VPCSAs, and thirty-three inland licensing regions. *See* Amendment of the Commission's Rules Concerning Maritime Communications, *Third Report and Order and Memorandum Opinion and Order*, PR Docket No. 92-257, 13 FCC Rcd 19853, 19861-63 ¶¶ 14-16 (1998) (*Public Coast Third Report and Order*); 47 C.F.R. § 80.371(c)(1)(ii).

[14] *See Report and Order*, 21 FCC Rcd at 8904 ¶ 18, 8907-08 ¶¶ 23-24.

[15] *Id*. at 8906 ¶ 19.

tracking vessels,[16] avoid the problems that would attend requiring vessels to switch AIS channels upon transiting an AIS "fence" between U.S. and international waters,[17] allow the United States to rely on existing AIS standards and infrastructure,[18] reduce the costs of AIS equipment and thus encourage voluntary AIS carriage,[19] and avoid the premature obsolescence of existing AIS equipment that had been marketed and installed on vessels in reliance on the existing AIS standards.[20]

5. As noted, the Commission limited its designation of Channel 87B for exclusive AIS use to the nine maritime VPCSAs.[21] In the *NPRM* in this proceeding, the Commission had declined to propose the designation of Channel 87B for AIS on a nationwide basis, *i.e*., in the thirty-three inland VPCSAs as well as in the nine maritime VPCSAs, in large part because there appeared to be little need for AIS in inland VPCSAs, given the absence of major navigable waterways in those inland areas.[22] The majority of commenters to the *NPRM*, however, favored a nationwide designation of Channel 87B for AIS. Commenters argued, for example, that a number of navigable waterways are, in fact, located within inland VPCSAs, and that AIS enhances navigational safety on inland waterways as well as in coastal waters and on the high seas.[23] Proponents of a nationwide AIS designation of Channel 87B also argued that it would promote homeland security by expanding the reach of AIS vessel tracking capabilities.[24] In addition, NTIA stated that the Coast Guard was exploring the feasibility of using satellites to augment the terrestrial AIS network, and that a nationwide designation of Channel 87B as well as Channel 88B for exclusive AIS use "may be necessary" to accommodate satellite AIS operations.[25]

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[16] *Id*.

[17] *Id*. at 8906 ¶ 20. The Commission expressed concern that "requiring vessels to switch channels as they transit an AIS 'fence' between international and U.S. waters would create a risk that AIS tracking of such vessels, by both shore stations and other ship stations, would be interrupted. This temporary disappearance of vessels from AIS screens as they transit the AIS fence increases the risk of vessel collisions and creates a potential vulnerability in the Nation's maritime domain awareness." *Id*. Maritime domain awareness is "the effective understanding of anything associated with the global maritime environment that could adversely impact the security, safety, economy or environment of the United States." Statement of Jeffrey P. High, Department of Homeland Security, United States Coast Guard, on the U.S. Coast Guard's Maritime Domain Awareness Efforts before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, U.S. House of Representatives, Oct. 6, 2004.

[18] *See Report and Order*, 21 FCC Rcd at 8907 ¶ 21. By enabling the United States to take full advantage of existing AIS standards and infrastructure, the Commission explained, the designation of Channels 87B and 88B for domestic AIS use "would facilitate the speedy and efficient deployment of AIS" in the United States. *Id*.

[19] *Id*.

[20] *Id*.

[21] *Id*. at 8928-30 ¶¶ 49-52.

[22] *See* Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems, *Memorandum Opinion and Order and Notice of Proposed Rule Making*, WT Docket No. 04-344, 19 FCC Rcd 20071, 20106 ¶ 63 (2004) (*NPRM*). The Commission also stated that there were public interest benefits in preserving the ability of inland VPCSA licensees to continue to provide VPC service on Channel 87B. *Id*.

[23] *See Report and Order*, 21 FCC Rcd at 8928 ¶ 50.

[24] *Id*. at 8928-29 ¶ 50.

[25] *Id*. at 8929 ¶ 51, *citing* NTIA Comments [to the *NPRM*] at 24-25. ORBCOMM, the satellite service provider that has contracted with the Coast Guard to develop satellite AIS capabilities, filed reply comments concurring in NTIA's assessment of the need for a nationwide designation to accommodate satellite AIS. *Id*. at 8929 n.264, *citing* ORBCOMM Reply Comments [to the *NPRM*] at 3-4.

6. In the *Report and Order*, the Commission noted that the subject of satellite AIS had been raised for the first time in NTIA's comments to the *NPRM*, and that, as a consequence, the record "provide[d] almost no information regarding the technical feasibility, effectiveness or potential benefits of satellite AIS, and no studies or analysis of potential interference to or from satellite AIS."[26] The Commission also observed, however, that the potential benefits of satellite AIS in expanding vessel tracking capabilities counseled against immediate rejection of a nationwide designation.[27] In the *Further Notice*, the Commission accordingly sought further comment on the question of whether to limit the AIS designation of Channel 87B to the nine maritime VPCSAs, or to instead extend it to the thirty-three inland VPCSAs as well.[28] It also requested comment with specific regard to satellite AIS, including the question of whether a nationwide AIS designation of Channel 87B was needed to accommodate satellite AIS.[29] In addition, the Commission invited further comment on the broader issue of whether a nationwide designation of Channel 87B for exclusive AIS use would benefit the public interest, offering commenters an additional opportunity to provide information regarding, for example, "the extent to which vessels on navigable waterways in the inland VPCSAs may benefit from AIS on the one hand, and VPC services, including maritime public correspondence services, on the other."[30] Finally, the Commission asked whether any of the duplex channels in each inland VPCSA set aside for public safety interoperability use[31] should be redesignated for VPC use, as essentially replacement spectrum for inland VPCSA licensees, if the Commission were to designate Channel 87B for AIS in the inland areas.[32]

7. The Commission also solicited comment on two additional AIS-related issues. First, regarding AIS base stations, commenters were asked to consider standards and procedures for authorizing AIS base station equipment, and whether the Commission should adopt rules to govern the licensing and use of such stations.[33] Second, the Commission requested comment regarding Class B AIS devices.[34] The Commission requested comment specifically on its proposal to incorporate by reference IEC 62287-1, the international standard for Class B AIS equipment, as the basis for certifying such equipment under Part 80 of the Rules.[35] In addition, the Commission requested comment on measures it might take to better ensure the accuracy of AIS data transmitted via Class B devices, including user-programmed static data.

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[26] *Id*. at 8930 ¶ 52.

[27] *Id*.

[28] *See Further Notice*, 21 FCC Rcd at 8933-34 ¶¶ 58-59.

[29] *Id*. at 8933-34 ¶ 58.

[30] *Id*. at 8934 ¶ 59.

[31] Channel 25 is set aside in every inland VPCSA; in addition, Channel 84 is set aside in some inland VPCSAs and Channel 85 is set aside in the other inland VPCSAs. *See* 47 C.F.R. § 80.371(c)(1)(ii); *see also Public Coast Third Report and Order*, 13 FCC Rcd at 19869 ¶ 31; 47 C.F.R. § 90.20(g)(2).

[32] *See Further Notice,* 21 FCC Rcd at 8934-35 ¶ 60.

[33] *Id*. at 8935 ¶ 61.

[34] *Id*. at 8935-36 ¶¶ 62-64.

[35] *Id*. at 8936 ¶ 63.

III. DISCUSSION

A. Designation of Channel 87B for AIS in Inland Areas

1. Need for AIS in Inland Areas

8. We conclude, on the basis of the augmented record, that it would promote the primary objectives in this proceeding, and would serve the broader public interest, to designate Channel 87B for exclusive AIS use in the thirty-three inland VPCSAs. Making Channel 87B, like Channel 88B, available only for AIS throughout the Nation will serve the public interest by expanding the effectiveness and reliability of AIS.

9. Many commenters[36] argue that Channel 87B should be designated exclusively for AIS use in the inland VPCSAs[37] for reasons independent of the need to accommodate satellite AIS. These commenters note that AIS offers great benefits as a tool to assist vessels in navigating safely on waterways within inland VPCSAs, just as it does with respect to vessels in coastal areas and on the high seas.[38] These commenters echo RTCM's assertion, made earlier in this proceeding,[39] that AIS can provide vessel operators with the ability to "see" around islands and bends in narrow, obstructed or winding waterways in a way that radar cannot.[40] According to RTCM, the unique navigational benefits of

[36] *See, e.g.,* ACR Electronics Comments at 1; APA Comments at 1-2; AWO Comments at 1-3; IALA Comments at 2; NI Comments at 1; NTIA Comments at 3, 8 n.18; RTCM Comments at 3-4; Task Force Comments at 2; USBI Comments at 1. *See* Appendix A, *infra*, for a list of the commenters and the acronyms or abbreviations by which they are referred to in the text and footnotes. In the interest of having a complete record in this proceeding, we accept the late-filed comments submitted by Carver, Daugherty, and NTIA. Although styled Reply Comments, the Shine Micro submission was filed on November 13, 2006, the deadline for filing comments, rather than reply comments, and is in the nature of comments. We therefore cite to this submission as Shine Micro Comments. Warren G. Havens, Telesaurus VPC LLC, Telesaurus Holdings GB, LLC, AMTS Consortium LLC, and Intelligent Transportation & Monitoring Wireless LLC (together, Havens) filed a pleading styled "Reply Comments" on November 28, 2006 (Havens Reply Comments). (On December 13, 2006, the Commission granted Havens's request to accept the Havens Reply Comments as timely filed. *See* Letter dated Dec. 13, 2006, from Marlene H. Dortch, Secretary, FCC, to Warren Havens, President, Telesaurus VPC LLC, etc.) The Havens Reply Comments, however, generally do not address any of the issues raised in the initial comments to the *Further Notice* or in the *Further Notice* itself, but instead concern matters outside the scope of this proceeding. We therefore grant MariTEL's Motion to Strike the Havens Reply Comments, filed December 21, 2006. *See, e.g.*, 47 C.F.R. § 1.415(c) (specifying that reply comments should be "in reply to the original comments"); Philippine Long Distance Telephone Company v. International Telecom Ltd. d/b/a Kallback Direct, *Memorandum Opinion and Order*, 15 FCC Rcd 6009, 6016 ¶ 16 (2000); BellSouth Corporation, *Memorandum Opinion and Order*, 13 FCC Rcd 539, 563 ¶ 41 (1997); Deletion of Noncommercial Reservation of Channel *16, 482-488 MHz, Pittsburgh, Pennsylvania, *Memorandum Opinion and Order*, 11 FCC Rcd 11700, 11701 n.6 (1996).

[37] Some of the commenters argue only that Channel 87B should be designated for AIS in inland VPCSAs which have navigable waterways, rather than throughout all inland VPCSAs. *See, e.g.*, ACR Electronics Comments at 1; Task Force Comments at 2. Given the breadth of the Coast Guard's definition of "navigable waters," *see* 33 C.F.R. § 2.36(a) (defining "navigable waters" to include territorial seas; internal waters subject to tidal influence; and internal waters not subject to tidal influence that are or have been used or susceptible for use as highways for substantial interstate or foreign commerce), which is incorporated in the Commission's rules, *see* 47 C.F.R. § 80.5, we question whether there are many inland VPCSAs with no navigable waterways.

[38] *See, e.g.*, ACR Electronics Comments at 1; AWO Comments at 1; Daugherty Comments at 1; NTIA Comments at 8 n.18; RTCM Comments at 3; Task Force Comments at 2; USBI Comments at 1.

[39] *See* RTCM Comments [to *NPRM*] at 4, *cited in Report and Order*, 21 FCC Rcd at 8928 n.256.

[40] *See* ACR Electronics Comments at 1; AWO Comments at 1; RTCM Comments at 3.

AIS will be especially important for large passenger vessels, large barge tows and similar vessels that have limited maneuverability on these inland waterways.[41]

10. Commenters assert that designation of a channel other than Channel 87B for inland AIS operations would result in many of the same problems that led the Commission to reject the use of a channel or channels other than Channel 87B for AIS in the maritime VPCSAs, *i.e.*, it would prevent the establishment of a seamless global AIS network (and, in this case, even a seamless nationwide AIS network) and would require vessels transiting an AIS "fence" between maritime and inland VPCSAs to switch to a different AIS channel.[42] These commenters believe, in sum, that a failure to designate Channel 87B for AIS use on inland waterways would prevent the United States from realizing the full navigational safety and homeland security benefits of AIS.[43]

11. Most commenters also believe that non-AIS operations should be prohibited on Channel 87B in the inland VPCSAs in order to protect the integrity of AIS operations not only in the inland VPCSAs, but also in the maritime VPCSAs and even in international waters. NTIA contends that the threat of co-channel interference to AIS from non-AIS transmissions on Channel 87B in inland VPCSAs is such that the Commission's main objective in this proceeding – to ensure that AIS is deployed widely, quickly, reliably, and cost-effectively, and in a manner that will maximize its capabilities – "cannot be fully attained unless the Commission designates AIS Channel 87B on a nationwide basis."[44] Commenters note, in this regard, that non-AIS transmissions on Channel 87B from transmitters located within inland VPCSAs would cause interference to AIS transmissions, even on the high seas, due to atmospheric "ducting,"[45] which can cause VHF signals to be received several hundred miles away.[46] Even relatively distant non-AIS transmissions on Channel 87B could therefore interfere with and degrade AIS operations, reducing the effectiveness of AIS for homeland security as well as navigational safety.[47]

12. MariTEL disputes the other commenters' arguments that non-AIS operations on Channel

[41] *See* RTCM Comments at 3.

[42] *See* ACR Electronics Comments at 1; APA Comments at 1. The need to switch AIS channels at the demarcation point between inland VPCSAs and maritime VPCSAs is problematic, APA explains, because, if done manually, it would place an additional burden on the bridge crew and create a risk that it would not be done correctly or at all. Even if done correctly, moreover, there will be some disruption of AIS communications during the switching process. Finally, commenters note that Class B AIS devices are designed to prevent manual switching of channels, so vessels equipped with Class B devices would have to be switched remotely by AIS base stations, which would burden base station personnel and increase AIS infrastructure costs. See APA Comments at 2; *accord*, AWO Comments at 3; RTCM Comments at 3-4.

[43] *See, e.g.*, APA Comments at 2 ("If AIS is to reach its potential as a significant navigation safety tool, a nationwide system is required"); AWO Comments at 2 (stating that, in the absence of a seamless AIS system covering all navigable waterways, including inland waterways, "AIS would be a security tool only of very limited value"); RTCM Comments at 3.

[44] *See* NTIA Comments at 3.

[45] Ducting is a phenomenon that occurs when radio waves get trapped by a variation in the atmospheric density. The waves can then travel along by refraction. Ducting usually occurs over water or other homogenous surfaces.

[46] *See, e.g.*, APA Comments at 1; AWO Comments at 3; IALA Comments at 2; NI Comments at 1; NTIA Comments at 3; RTCM Comments at 4. NTIA notes that the propagation of non-AIS signals (as well as AIS signals) also can be extended through tropospheric scatter. *See* NTIA Comments at 7.

[47] *See, e.g.*, AWO Comments at 3; IALA Comments at 2; NI Comments at 1; NTIA Comments at 3; RTCM Comments at 4.

87B, even in inland VPCSAs, will cause interference to AIS operations.[48] MariTEL contends that the Commission previously considered and rejected similar arguments in permitting the use of VPC spectrum for land mobile operations pursuant to waivers.[49] In those waiver decisions, according to MariTEL, the Commission determined that the use of VPC channels for maritime communications would not be compromised if land mobile use of the channels occurred sufficiently distant from the coast and navigable waterways.[50] This argument overlooks the fact that the referenced decisions by the Wireless Telecommunications Bureau's former Public Safety and Critical Infrastructure Division did not permit land mobile use of Channel 87B,[51] and expressly conditioned the non-maritime use of the frequencies on there being no harmful interference to current or future marine communications, including but not limited to AIS.[52] In addition, the waivers granted in those cases were of limited geographic scope. We therefore are not persuaded that those waiver decisions contradict the consensus view of the commenters other than MariTEL that non-AIS operations in inland VPCSAs can cause harmful interference to co-channel AIS communications, or that these decisions otherwise undermine the rationale for a nationwide designation of Channel 87B for AIS.[53] We therefore conclude that the public interest in homeland security and maritime safety would best be served by prohibiting non-AIS operations on Channel 87B throughout the Nation in order to protect the integrity of terrestrial (*i.e.*, non-satellite) AIS communications.

13. In addition, we conclude that non-AIS operations on Channel 87B would likely cause interference to satellite AIS communications. NTIA says that "[p]reliminary reports demonstrate that, with specific configurations, it is possible for land-based stations reliably to receive AIS signals from

[48] *See* MariTEL Reply Comments at 3-4. In addition to arguing that Channel 87B should remain designated for VPC operations in the inland VPCSAs, MariTEL also contends that the channel should be available for VPC operations in the inland portions of the maritime VPCSAs. *See* MariTEL Comments at 4-5. This argument is beyond the scope of the *Further Notice*, which requested additional comment on the channel designation question only with respect to the inland VPCSAs. *See Further Notice*, 21 FCC Rcd at 8933-34 ¶¶ 58-59. In any event, this question was specifically raised in the *NPRM*, but neither MariTEL nor any other commenter to the *NPRM* suggested any basis for defining areas of maritime VPCSAs where co-channel non-AIS operations should be permitted. *See NPRM,* 19 FCC Rcd at 20106 ¶ 63 ("We also seek comment on whether Channels 87B and 88B must be set aside throughout all of each maritime VPCSA, or whether there are areas where VPC operations would not pose an interference threat"). Consequently, the *Report and Order* expressly determined that VPC use of Channel 87B should not be permitted anywhere in the maritime VPCSAs. *See Report and Order*, 21 FCC Rcd at 8928 n.252. We decline to revisit the question here. In any event, permitting non-AIS operations on Channel 87B in inland portions of maritime VPCSAs would be inconsistent with our determination herein to designate Channel 87B exclusively for AIS on a nationwide basis.

[49] *See* MariTEL Comments at 5, *citing* County of Placer, California, *Order*, 20 FCC Rcd 3657 (WTB PSCID 2005) (*Placer County Order*); Commonwealth of Virginia, *Order,* 19 FCC Rcd 15454 (WTB PSCID 2004) (*Virginia Order*); MariTEL Reply Comments at 3-4 (same).

[50] *See* MariTEL Reply Comments at 3-4.

[51] *See Placer County Order,* 20 FCC Rcd at 3658 ¶ 4; *Virginia Order*, 19 FCC Rcd at 15459 ¶ 10.

[52] *See Placer County Order*, 20 FCC Rcd at 3662 ¶ 12; *Virginia Order*, 19 FCC Rcd at 15459 ¶ 10. Moreover, there was no discussion in the record of those proceedings regarding ducting effects.

[53] Similarly, we see no inconsistency between this decision and the Commission's recent action expanding the flexibility of VPC geographic licensees to serve units on land, because that flexibility is expressly conditioned on affording priority to marine-originating communications. *See Coast Station Flexibility Order*, 22 FCC Rcd at 8981 ¶ 15.

approximately 350 nautical miles."[54] The Maritime Transportation and Security Act of 2002 (MTSA), however, requires the Coast Guard to develop long-range tracking capabilities,[55] and the Coast Guard's goal in furtherance of that mandate is to extend AIS coverage to two thousand nautical miles from the United States shoreline.[56] As discussed in the *Report and Order* and *Further Notice*,[57] NTIA is therefore exploring the possibility of using a low earth orbit communications satellite system to receive, process and relay AIS data, and has contracted with ORBCOMM, a mobile satellite service licensee, to evaluate satellite detection of AIS signals.[58] The consensus of the commenters[59] is that satellite AIS, if it proves feasible,[60] will offer significant advantages over terrestrial AIS by, for example, expanding vessel tracking capabilities to encompass areas of the high seas well beyond the reach of non-satellite AIS.[61]

14. NTIA and other commenters argue that the Commission should bar non-AIS

[54] *See* NTIA Comments at 5 n.10. NTIA adds, however, that the Coast Guard has sometimes received AIS reports at distances exceeding 350 nautical miles, and even 450 to 500 nautical miles, while experimenting with various techniques for extending the range of non-satellite AIS coverage. *Id*. at 7.

[55] *See* 46 U.S.C. § 70115.

[56] *See* ORBCOMM Comments at 3-4; U.S. General Accountability Office, Maritime Security: Partnering Could Reduce Federal Costs and Facilitate Implementation of Automatic Vessel Identification System, Report to the Committee of Commerce, Science, and Transportation, U.S. Senate, at n.15 (GAO-04-868 July 2004) (viewable at http://www.gao.gov/new.items/d04868.pdf).

[57] *See Report and Order*, 21 FCC Rcd at 8929-30 ¶ 51; *Further Notice*, 21 FCC Rcd at 8933-34 ¶ 58.

[58] *See* NTIA Comments at 5. ORBCOMM asserts that its next-generation AIS-equipped satellites will have a footprint with a diameter of three thousand miles, *see* ORBCOMM Comments at 6, and "will allow reliable monitoring of AIS transmissions virtually anywhere on the planet." *Id*. at 4.

[59] *See* NTIA Comments at 2-9; ORBCOMM Comments at 1-10; ORBCOMM Reply Comments at 2-7; *see also*, *e.g.*, ACR Electronics Comments at 1; AWO Comments at 3; RTCM Comments at 5; Shine Micro Comments at 1-2; Task Force Comments at 3. We note that some of these commenters support the nationwide designation of Channel 87B for exclusive AIS use as an accommodation to satellite AIS, but they rely primarily on the benefits of such a nationwide allocation for terrestrial AIS, as discussed *supra*.

[60] Although some commenters contend that both the benefits and the feasibility of satellite AIS have been demonstrated, *see, e.g.*, AWO Comments at 3; RTCM Comments at 5; Task Force Comments at 3, the comments of NTIA and ORBCOMM, the parties that are most directly involved in developing satellite AIS, indicate that its feasibility remains an open question. *See, e.g.,* NTIA Comments at 5 (stating that the NTIA-ORBCOMM initiative is intended to "test the technical and operational feasibility of spaceborne AIS receivers"); NTIA Comments at 8 (indicating that "[i]t may be some time before large-scale satellite detection of AIS signals and other technologies are implemented due to the need for … additional study, evaluation …"); ORBCOMM Comments at 2 ("Assuming that [its] demonstration [of satellite AIS monitoring] proves successful," ORBCOMM will likely incorporate AIS monitoring capabilities in new satellites to be launched in the future).

[61] Shine Micro favors the designation of a third AIS channel to be dedicated solely to satellite AIS, but does not believe designation of a satellite-only AIS channel is viable at present, for a number of reasons. Shine Micro therefore proposes, as an alternative, that Channel 88B be designated as the "preferred" long-range AIS tracking channel, and that Class B AIS devices be prohibited from operating on Channel 88B within U.S. territorial waters, in order to preserve its availability for long-range tracking. *See* Shine Micro Comments at 2; *accord* MariTEL Reply Comments at 5. We find this Shine Micro proposal to be outside the scope of this rulemaking. Adoption of this proposal would, in any event, require the concurrence of NTIA inasmuch as Channel 88B is a Federal channel. In addition, we note that the Coast Guard, in an *ex parte* filing, states that the restriction proposed by Shine Micro could be implemented "through on-air channel management without the need to hard-wire that restriction into Class B AIS units sold in the United States." *See* Letter dated Mar. 27, 2007, from Joseph D. Hersey, Jr., Chief, Spectrum Management Division, U.S. Coast Guard, to Marlene H. Dortch, Secretary, FCC at 1 (Coast Guard *Ex Parte* Filing).

transmissions on Channel 87B, even in inland areas, in order to avoid disruptions to satellite reception of AIS signals,[62] which could, as ORBCOMM notes, "hinder the U.S. Coast Guard in fulfilling its critical homeland security role."[63] NTIA asserts that a report by the Department of Defense Joint Spectrum Center (JSC) analyzing technical issues relating to satellite AIS[64] demonstrates that non-AIS co-channel signals "cause[] degradation in AIS signal detection … that is both unpredictable and unmanageable,"[65] and that this signal degradation "will significantly decrease the effectiveness of the AIS system" to the point of defeating the purpose of using satellite AIS to expand long-range vessel tracking capabilities.[66] ORBCOMM concurs that there is no current means of controlling non-AIS co-channel interference to satellite AIS, explaining that it is developing protocols/algorithms that will allow it to address simultaneous AIS transmissions from different ships, but that these do not prevent interference to AIS communications from non-AIS sources.[67]

15. MariTEL argues that the Commission should not designate Channel 87B for AIS in the inland VPCSAs as an accommodation to satellite AIS because "there is no evidence that space-based monitoring will provide the Coast Guard with any more information than it would otherwise receive from terrestrial monitoring,"[68] and because, even if such space-based monitoring of AIS transmissions on

[62] *See* NTIA Comments at 8; ORBCOMM Comments at 1-2; *see also, e.g.,* ACR Electronics Comments at 1; AWO Comments at 3; RTCM Comments at 5; Shine Micro Comments at 1; Task Force Comments at 3.

[63] *See* ORBCOMM Comments at 8-9.

[64] *See* "Satellite Detection of Automatic Identification System Messages," Joint Spectrum Center, Department of Defense (Sept. 19, 2006) (JSC Report). The JSC Report is attached to NTIA's comments as Exhibit A. The JSC Report has been peer reviewed in compliance with the Peer Review Bulletin issued by the Office of Management and Budget (OMB). *See generally* OMB Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664 (Jan. 14, 2005). All of the materials relating to this peer review – including the study (the JSC Report), the charge statement (the memorandum requesting the peer review, including attachments), the peer review report, and the response to that report – are disseminated on the Commission's website. *See* www.fcc.gov/omd/dataquality/peer-agenda.html.

[65] *See* NTIA Comments at 6.

[66] *Id*. NTIA explains that the JSC Report "finds that several key technical factors distinguish satellite AIS detection from conventional ship-to-ship and ship-to-shore AIS detection, specifically receiver sensitivity, antenna gain pattern, and reliability requirements. Unlike conventional terrestrial AIS operations that may be able to co-exist with other co-channel transmitters through geographical separation, because the satellite beam covers a very large geographical area, the satellite antenna receives not only AIS ship transmissions, but also non-AIS signals transmitted on the AIS frequency." *Id*.

[67] *See* ORBCOMM Comments at 7. ORBCOMM notes, moreover, that non-AIS signals on Channel 87B in inland VPCSAs "would be operating at two to four times the power levels of the AIS transmissions, and ORBCOMM foresees no reliable way of 'filtering out' these more powerful undesired signals. Nor does ORBCOMM perceive any practical method of coordinating shared usage of this band, particularly because of the absence of any central control of AIS transmissions by ships at sea." *Id.* The problem will be particularly acute, ORBCOMM adds, with respect to interference to AIS signals originating from inland waterways, due to both frequency and geographic overlap of the desired AIS signals and the undesired non-AIS signals. *Id*. at 8.

[68] *See* MariTEL Comments at 3. MariTEL also contends that "there is no evidence that the Coast Guard or [NTIA] is actually in the process of developing any particular satellite-based AIS system." *Id*. at 3-4. MariTEL acknowledges the Coast Guard's "provision of funding to ORBCOMM for satellite AIS research" but asserts that such funding "is not indicative of a near-term plan." *Id*. at n.7. This argument, however, is belied by the Coast Guard's contract with ORBCOMM to test the feasibility of satellite AIS, and the JSC's submission to the ITU of a report on satellite AIS technical issues. On June 19, 2008, moreover, six ORBCOMM satellites with AIS payloads were launched. *See* Satellite TODAY, "Orbcomm Announces Successful Launch of Six Satellites," June 20, 2008, viewable at http://www.viasatellite.com/st/headlines/23454.html. We therefore disagree with MariTEL to the extent (continued….)

Channel 87B is deemed beneficial, satellite AIS can co-exist with non-AIS operations on Channel 87B in inland VPCSAs.[69] We find neither argument to be convincing. MariTEL does not dispute that satellite AIS can greatly enlarge the distance at which AIS transmissions can be received and relayed. In addition, MariTEL's argument that an AIS satellite should be able to distinguish land mobile radio transmissions on Channel 87B in inland VPCSAs from AIS transmissions on the channel elsewhere fails to effectively address the comments submitted by the entities responsible for implementing satellite AIS indicating that it is not currently possible to filter out the non-AIS transmissions, and that those non-AIS transmissions would likely degrade satellite AIS reception, even with respect to AIS transmissions from vessels far from shore.[70] We therefore conclude that non-AIS operations on Channel 87B would likely need to be terminated if satellite AIS proves feasible and is fully implemented.

16. In sum, we agree with commenters such as NTIA that "[t]here are compelling safety and national security reasons to designate Channel 87B for AIS on a nationwide basis."[71] Because the desirability of deploying AIS in coastal and international waters applies equally to inland rivers and lakes, the optimization of the domestic AIS network clearly requires the designation of Channels 87B and 88B for inland AIS, and permitting any non-AIS uses of Channel 87B anywhere in the Nation would compromise the integrity of the domestic, and by extension the global, AIS network.[72] We also find that implementation of satellite AIS[73] would serve the public interest, and that clearing Channel 87B of non-

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that it argues that satellite AIS is too conjectural to be a consideration in this proceeding. *See, e.g.*, NTIA Comments at 5-6; ORBCOMM Comments at 2-4.

[69] *See* MariTEL Comments at 4.

[70] We disagree with MariTEL's contention that the other commenters' arguments regarding the interference impact of non-AIS inland VPCSA communications on terrestrial and satellite AIS operations are "completely speculative." *See* MariTEL Reply Comments at 3. Rather, it is MariTEL's unsupported assumption that "satellite monitoring would only detect channel 87B transmissions from vessels with AIS radios and not channel 87B transmissions from land mobile radios," *see* MariTEL Comments at 4, that appears speculative, given the insistence of the responsible entities that they lack the ability to so distinguish among transmissions. Moreover, our concern that non-AIS operations on Channel 87B in inland VPCSAs could cause interference to terrestrial and satellite AIS is not inconsistent with the Commission's determination in the *Report and Order* that it was premature, on the basis of the then-existing record, to address VPC-to-AIS interference issues. *See Report and Order*, 21 FCC Rcd at 8909 n.119. While MariTEL alone addressed that issue at that stage of the proceeding, the matter of interference to AIS from non-AIS operations has been addressed by virtually all of the commenters to the *Further Notice*, who, save MariTEL, all agree that such interference will result if the AIS designation of Channel 87B is not nationwide.

[71] *See* NTIA Comments at 3.

[72] MariTEL remains "concerned that the Coast Guard's future plans – to which the FCC has acceded to date – will decimate MariTEL's business." *See* MariTEL Reply Comments at 6-7. MariTEL therefore urges the Commission to "make it clear that it intends no further frequency relocation to accommodate AIS operations." *Id.* at 7. We are unable to provide MariTEL with a guarantee that, regardless of circumstances, its licensed spectrum will not be further encumbered in the future. Should the Commission be presented in the future with an issue implicating MariTEL's licensed VPC spectrum, the Commission will have to resolve that question in a manner that best promotes the public interest, convenience and necessity, as the Commission finds it at that time. No licensee is entitled to the sort of assurance that MariTEL is seeking. *See Report and Order*, 21 FCC Rcd at 8924 ¶ 44 & n.229, and cases cited therein.

[73] ORBCOMM urges the Commission to amend its Table of Frequency Allocations, 47 C.F.R. § 2.106, to clarify, either through a direct table entry or through a footnote, that satellite monitoring of AIS signals on Channels 87B and 88B is permissible. *See* ORBCOMM Comments at 4-5, 9-10. We find it unnecessary to do so. As we understand it, the feasibility of satellite AIS does not depend on any new uplink authorization inasmuch as the satellite will be able to receive the same AIS transmissions that are already authorized under ship station licenses. Downlink communications, moreover, will be under the total control of the Federal Government. *See Report and* (continued….)

AIS operations would be necessary to maximize the effectiveness of satellite AIS operations.[74]

2. Existing Licensees on Channel 87B

17. As a consequence of our designation of Channel 87B for AIS in the inland VPCSAs, we must establish a framework for clearing the channel of non-AIS operations. In the *Report and Order*, the Commission held that site-based VPC and private land mobile radio (PLMR) licensees in the maritime VPCSAs could continue to operate on Channel 87B until the expiration of their current license terms,[75] but authorizations to operate on Channel 87B would not be renewed.[76] In the inland VPCSAs, in contrast, there are no site-based VPC licensees and only two site-based PLMR licensees, one of which is a public safety entity.[77] In addition, there is less maritime activity in the inland VPCSAs, further reducing the short-term potential for Channel 87B licensees in those areas to cause interference to AIS operations. Moreover, the full-scale implementation of satellite AIS is a longer-term project than the implementation of ship-to-ship and ship-to-shore terrestrial AIS operations.[78] Under these circumstances, we conclude

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Order, 21 FCC Rcd at 8929-30 ¶ 51 (stating that the AIS satellite "will not transmit AIS information directly to end users, but will send the data via downlink to a gateway Earth Station, to be routed through a Network Control Center, and ultimately incorporated into appropriate Coast Guard command and control systems for distribution to other users"). In these circumstances, we do not discern anything in the existing Section 2.106 Table of Frequency Allocations or elsewhere in the Commission's Rules that would preclude satellite AIS, as currently envisioned by its proponents.

[74] As noted above, we do not rely primarily on the need to accommodate satellite AIS as the basis for a nationwide designation of Channel 87B for exclusive AIS use. *See* paras. 9-12, *supra.* Accordingly, our determination that a nationwide designation would be warranted even in the absence of satellite AIS obviates the need to revisit the issue if satellite AIS ultimately proves infeasible, or even to address that contingency in the present action.

[75] *See Report and Order*, 21 FCC Rcd at 8932 ¶ 56. In so holding, the Commission observed that it had not been presented with any evidence of actual interference to AIS operations from incumbent site-based operations on Channel 87B, and stated its belief that terrestrial AIS would "be able to operate effectively notwithstanding the continued use of Channel 87B for a limited period of time by a very few, highly localized VPC stations." *Id*. at 8933 ¶ 56.

[76] *Id*. at 8933 ¶ 57 & n.287.

[77] The site-based licensees using Channel 87B in the inland VPCSAs are the State of Arizona (Stations WPGA967, Phoenix; WPGA968, Tucson; WPGA969, Phoenix; and WPGA970, statewide), and Frontier Refining Inc. (Station WNQQ375, Cheyenne, Wyoming). These licensees are using the channel for public safety and other PLMR operations, pursuant to former Section 90.283 of the Commission's Rules, or to earlier waivers. *See* 47 C.F.R. § 90.283 (1995). Former Section 90.283 provided that specified frequencies in the 156-162 MHz maritime band could be assigned for private land mobile radio use, subject to certain conditions, where there were no available Part 90 VHF frequencies. *See* 47 C.F.R. § 90.283(a)-(b) (1995). The conditions included minimum distance separations from co-channel VPC stations and the coastlines of any navigable waterways. *See* 47 C.F.R. § 90.283(d) (1995). The rule also provided that the Commission would entertain waivers to permit PLMR operations on a secondary, non-interference basis to maritime operations if the applicant could not meet the minimum distance separation with respect to a navigable waterway. *See* 47 C.F.R. § 90.283(f) (1995); Amendment of the Commission's Rules Concerning Maritime Communications, *First Report and Order*, PR Docket No. 92-257, 10 FCC Rcd 8419 (1995). Section 90.283 was deleted when the Commission adopted a geographic licensing scheme for VPC spectrum in 1998, but PLMR operations licensed pursuant to that rule were grandfathered. *See Public Coast Third Report and Order*, 13 FCC Rcd at 19863-64 ¶ 18. Operation of a PLMR station authorized to use Channel 87B on a secondary basis must cease immediately if it causes harmful interference to AIS that the licensee is unable to remedy. *See Report and Order*, 21 FCC Rcd at 8933 ¶ 57.

[78] *See* NTIA Comments at 8-9 (noting that, since "[i]t may be some time before large-scale satellite detection of AIS signals and other technologies are implemented," it is not necessary to provide for a nationwide allocation for AIS on Channel 87B immediately, and that, as a consequence, existing operations on Channel 87B in the non-maritime (continued….)

that we can afford an additional period of grandfathering protection to the site-based Channel 87B PLMR licensees in inland VPCSAs. Specifically, we will permit them to remain authorized to operate on Channel 87B for fifteen years after the effective date of the rule amendments adopted herein.[79] This will provide incumbent site-based licensees with an ample period of time to adjust to the redesignation of Channel 87B without any disruption to their present operations, while at the same time ensuring eventual clearance of all non-AIS operations from the channel.

18. With respect to geographic licensees in the inland VPCSAs, the Commission noted in both the *NPRM*[80] and the *Further Notice*[81] that two duplex channel pairs in the VHF maritime band have been set aside in each inland VPCSA as public safety interoperability channels.[82] Specifically, Channel 25 (157.250/161.850 MHz) is set aside in every inland VPCSA, and either Channel 84 (157.225/161.825 MHz) or Channel 85 (157.275/161.875 MHz) is also set aside in each inland VPCSA.[83] The Commission's ULS database indicates that only four entities are currently licensed pursuant to the set-aside.[84] In the *Further Notice*, the Commission noted that it had designated significant additional spectrum for public safety interoperability, in the VHF band and elsewhere, in the years following the set-aside of these VPC channels for that purpose,[85] and it requested comment as to whether, in the event it

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VPCSAs "should be allowed to continue … until such time as a final determination is made that they must vacate the channel").

[79] We note that PLMR licensees in the 150-174 MHz band are required to migrate from 25 kHz bandwidth operations to 12.5 kHz technology or technology that achieves equivalent efficiency by 2013. *See* Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, *Third Memorandum Opinion and Order, Third Further Notice of Proposed Rule Making and Order*, WT Docket No. 99-87, RM-9332, 19 FCC Rcd 25045, 25046 ¶ 1 (2004). Earlier in that proceeding, the Commission indicated that ten years is a reasonable equipment replacement cycle and a reasonable life span for equipment. *See* Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, *Second Report and Order and Second Further Notice of Proposed Rule Making*, WT Docket No. 99-87, RM-9332, 18 FCC Rcd 3034, 3041-42 ¶¶ 15-19 (2003), *citing* Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, *Report and Order and Further Notice of Proposed Rule Making*, PR Docket No. 92-235, 10 FCC Rcd 10076, 10098 ¶ 35 (1995). Therefore, a fifteen-year grandfathering period in this proceeding should more than span the replacement cycle of equipment in use by site-based Channel 87B PLMR licensees in inland VPCSAs.

[80] *See NPRM*, 19 FCC Rcd at 20106 ¶ 63.

[81] *See Further Notice*, 21 FCC Rcd at 8934 ¶ 60.

[82] *See* 47 C.F.R. §§ 80.371(c)(1)(ii), 90.20(g)(2).

[83] *See* 47 C.F.R. §§ 80.371(c)(1)(ii), 90.20(g)(2).

[84] The public safety entities licensed to operate on one or more of these channels in inland VPCSAs are the State of Wyoming (Stations WQCR772 and WQJA319, Cheyenne, KB9153 (mobile-only), WQJA320, Fremont County, WQJA429, Cody-Spotted Horse, WQJA434, Sheridan, Big Horn and Washakie Counties, WQJA439, Johnson and Weston Counties, WQJA441, Campbell and Crook Counties, WQJA446, Niobrara, Goshen, Lincoln and Teton Counties, WQJA452, Carbon County, WQJA455, Natrona and Converse Counties, and WQJA458, Albany and Platte Counties); Unified School District 457 of Garden City, Kansas (Stations KJR221, KJR224, and KK7146, Garden City, Kansas); County of Placer, California (Station WQFE808, Reno, Nevada); and the Panhandle Regional Planning Commission (Stations WQGV794, Amarillo, Texas, and WQGP756, Turkey, Texas).

[85] *See Further Notice*, 21 FCC Rcd at 8934 ¶ 60. The spectrum available for public safety interoperability includes five "mutual aid" channels in the 800 MHz band, 47 C.F.R. §90.617(a)(1), 2.6 megahertz of spectrum in the 700 MHz band, 47 C.F.R. § 90.531(b)(1), (c)(1), and five VHF channels and four UHF channel pairs below 512 MHz, 47 C.F.R. § 90.20(d)(80). In addition, the Commission recently allocated 700 MHz spectrum for nationwide, interoperable broadband public safety communications. *See* Service Rules for the 698-746, 747-762 and 777-792 (continued….)

designated Channel 87B for exclusive AIS use nationwide, any of these set-aside channels should be redesignated for use by inland VPCSA licensees.[86]

19. In light of our determination to redesignate Channel 87B for exclusive AIS use in those VPCSAs, we find that it is appropriate to redesignate one of the public safety set-aside channel pairs in each inland VPCSA for use by inland VPCSA licensees. The only commenters addressing this issue – MariTEL, PacifiCorp, and RTCM – all favor redesignation of the channels, at least in the absence of any showing that they are needed for public safety interoperability communications.[87] MariTEL argues that "equity demands nothing less."[88] MariTEL also suggests that giving inland VPCSA licensees replacement spectrum would make them "whole" for the loss of Channel 87B.[89]

20. We therefore redesignate duplex Channels 84 and 85 for VPC communications in the inland VPCSAs.[90] Like incumbent site-based PLMR licensees operating on Channel 87B, site-based incumbents currently authorized on Channels 84/85 will remain authorized to operate on those channels for a period of fifteen years following the effective date of these rule amendments.[91] As noted above with respect to incumbents on Channel 87B, a grandfathering period of fifteen years should provide affected public safety licensees with ample time for transition without any disruption to their present operations.[92] In addition, making these former public safety set-aside channels available to inland VPCSA licensees is equitable because it will restore the operating capacity of these licensees, who, unlike the maritime VPCSA licensees, were under no pre-existing obligation to make any of their licensed spectrum available

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MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, *Second Report and Order*, WT Docket No. 06-150, PS Docket No. 06-229, 22 FCC Rcd 15289 (2007), *on recon*., 22 FCC Rcd 17935 (2007), *erratum*, 22 FCC Rcd 18907 (WTB/PSHSB 2007), *further recon. pending*.

[86] *See Further Notice*, 21 FCC Rcd at 8934-35 ¶ 60.

[87] *See* MariTEL Comments at 5; RTCM Comments at 5; PacifiCorp Reply Comments at 1-8.

[88] *See* MariTEL Comments at 5.

[89] *Id*. (stating that, "[w]hile the Commission has asserted in the Report and Order that it has the authority to strip licensees of their spectrum, where it has the ability to make licensees whole in the process, it should certainly do so as a matter of public policy"). PacifiCorp, which has been licensed to use VPC spectrum for PLMR operations under Part 90 pursuant to waivers, states that, "[w]ith so few channels available, loss of even one 25 kHz channel would have a significant and detrimental impact on [its] ability to meet its private land mobile communications requirements." *See* PacifiCorp Reply Comments at 4-5.

[90] We have decided to make Channels 84/85 available to inland VPCSA licensees, rather than Channel 25, for several reasons. All four of the public safety licensees are licensed on Channel 25, but not all four are licensed on the other channels. In addition, Channel 25 is more useful for public safety interoperability because it is set aside throughout the inland VPCSAs. Finally, PacifiCorp, the only commenter addressing this precise issue, favors the reallocation of Channels 84 and 85, explaining that the reallocation of those channels would be more beneficial than a reallocation of Channel 25 in providing additional flexibility to inland VPCSA licensees and lessees with respect to signal strength across the border of adjacent VPCSAs. *See* PacifiCorp Reply Comments at 1, 7-8.

[91] This grandfathering protection will be accorded both to existing licenses and to licenses granted pursuant to applications that were filed prior to the release of this *Second Report and Order*. That is, if an application for authorization to operate on Channel 84 or 85 that was pending as of the release date of this *Second Report and Order* is granted subsequent to the release date, the licensee will be permitted to operate on Channel 84 or 85 until fifteen years after the effective date of these rules, regardless of the date of licensing. In light of the actions described above, however, we will suspend the acceptance of new site-based applications for Channel 84 or 85 as of the release date of this *Second Report and Order*, and amend our rules to prohibit any subsequent applications for those channels.

[92] *See* para. 17 and n.79, *supra*.

for AIS.[93] This action is also equitable in consideration of the fact that the nationwide AIS designation of Channel 87B is itself intended to promote public safety.[94] We find that our action will not disserve public safety, especially in light of our determination to temporarily grandfather the existing public safety use of the channels.[95]

21. In order to provide a transition period for inland VPCSA geographic licensees to switch from Channel 87B to Channels 84/85, we will permit inland VPCSA geographic licensees to continue to operate on Channel 87B for up to two years after the effective date of these rules, while allowing them to modify their licenses to replace Channel 87B with Channel 84 or Channel 85, as appropriate, any time after the effective date.[96] This transition period should be ample to avoid any disruption of existing operations by inland VPCSA licensees, and should not otherwise prove onerous to the licensees.[97] At the same time, this limited relief for existing inland VPCSA licensees should not compromise efforts to implement AIS in the United States as quickly and broadly as possible. At the end of the two-year transition period, we will modify any inland VPCSA licenses that were not previously modified to replace Channel 87B with Channel 84 or Channel 85, as appropriate.[98]

B. AIS Base Station Issues

22. In the *Further Notice*, the Commission, noting that the International Electro-technical Commission (IEC) was in the process of developing AIS base station equipment standards, asked interested parties to address standards and procedures for authorizing AIS base station equipment under Part 80, and sought comment on whether the Commission should adopt rules for the licensing and use of AIS base stations.[99] After reviewing the record, we conclude that AIS base stations should be operated

[93] *See* MariTEL Reply Comments at 5-6.

[94] *See id*. at 6; PacifiCorp Reply Comments at 6-7; *see also* NTIA Comments at 3 (arguing that a nationwide designation of Channel 87B for AIS is warranted as a public safety measure).

[95] We note, moreover, that Channels 84 and 85 may still be used for public safety operations by inland VPCSA licensees, partitionees, disaggregatees, and/or lessees, even after this redesignation. The Commission has recently revised the Part 80 rules to provide VPC licensees with the flexibility to provide (or, *e.g*., lease spectrum for) private land mobile radio service, which may include public safety or critical infrastructure industry communications. *See Coast Station Flexibility Order*, 22 FCC Rcd at 8976-77 ¶ 8. It remains, however, that such operations must be consistent with the Part 80 rules in the absence of a waiver permitting operation under Part 90. *Id*. at 8983-85 ¶¶ 20-21.

[96] In areas where VPC spectrum has been disaggregated, Channels 84/85 will be assigned to the licensee authorized to operate on Channel 87B.

[97] We are not allowing inland VPCSA geographic licensees as lengthy a grandfathering period to continue operating on Channel 87B as we are affording site-based Channel 87B licensees in the inland VPCSAs because geographic licensees can engage in wide-area VPC operations, which pose a greater potential threat of interference to AIS. Because, as discussed *supra*, incumbent site-based licensees operating on Channels 84/85 in the inland VPCSAs have been grandfathered to permit them to continue to operate on those channels for fifteen years, while inland VPCSA licensees are required to migrate from Channel 87B to Channels 84/85 within two years, there may in some inland VPCSAs be a period during which an incumbent site-based licensee and the migrating geographic licensee are both authorized on Channels 84/85. In such instances, the geographic licensee must protect the site-based incumbent operations in accordance with Section 80.773(b) of the Commission's Rules, 47 C.F.R. § 80.773(b).

[98] Inland VPCSA geographic licensees remain subject to their existing construction deadlines. *See* 47 C.F.R. § 80.49(a)(1) (establishing five- and ten-year construction deadlines for VPC geographic licensees). Transitioning to Channel 84 or Channel 85 from Channel 87B should not significantly disrupt those construction efforts.

[99] *See Further Notice*, 21 FCC Rcd at 8935 ¶ 61. The IEC is an international non-governmental organization engaged in the development of international standards for electrical, electronic and related technologies. Its (continued….)

only by Federal entities, and, as a consequence, that the Commission need not adopt any rules pertaining to AIS base station equipment certification, licensing, or operation.

23. Almost all of the commenters addressing this question believe that private sector entities should not be licensed to operate AIS base stations.[100] NTIA states that control of AIS base stations is "an inherently federal government function."[101] According to NTIA, AIS base stations control all aspects of the AIS network, and can override certain shipborne AIS functions.[102] It explains, "Base stations manage the AIS VHF Data Link by managing communications traffic on AIS through various means to provide for the safety of navigation, to obtain information necessary for VTS [Vessel Traffic Services] and national security purposes, to transmit safety related messages, and to serve as an aid to navigation."[103] RTCM adds, "This power of AIS Base Stations to affect the operating characteristics of AIS systems should only be available to federal agencies with responsibility for navigational safety and security."[104]

24. Alone among the commenters, MariTEL asserts that AIS base stations should also be permitted to conduct commercial operations.[105] MariTEL also argues that a determination not to permit private sector entities to be licensed for AIS base stations means that Channel 87B will in fact have been reallocated for exclusive Federal use, not the shared Federal/non-Federal use to which the Commission said the channel was being reallocated in the *Report and Order*.[106] We disagree because, in making this argument, MariTEL ignores the existence of ship-to-ship AIS communications, which do not directly involve AIS base stations, and are authorized under Part 80 of the Rules pursuant to Commission-issued ship station licenses.[107]

25. We agree with NTIA and the other commenters who argue that the responsibilities of operating AIS base stations should be undertaken only by Federal entities. AIS base stations will query and send commands to vessels. They will have the capability of overriding certain shipborne AIS functions through remote control. They will serve as aids to navigation, in a fashion similar to lighthouses. They will be responsible for maritime traffic management. Given the critical role played by AIS base stations in the global AIS network, it would be inappropriate to permit private sector entities, or

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membership consists of fifty-four countries, including the United States, as full members, and an additional seventeen countries as associate members. Among other things, it works closely with SOLAS organizations in developing standards for GMDSS equipment. *See* Amendment of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications, *Notice of Proposed Rule Making and Memorandum Opinion and Order*, WT Docket No. 00-48, 15 FCC Rcd 5942, 5947 n.21 (2000); http://www.iec.ch.

[100] *See, e.g.*, ACR Electronics Comments at 2; NTIA Comments at 9-11; RTCM Comments at 5-6; Task Force Comments at 3; USBI Comments at 1. These parties state that private sector entities such as marinas, marine exchanges and terminals, would benefit from having access to AIS data, but that they can obtain such information through the use of AIS receive-only equipment, without being licensed to operate AIS base stations. *See, e.g.*, ACR Electronics Comments at 2; RTCM Comments at 6; Task Force Comments at 3.

[101] *See* NTIA Comments at 9.

[102] *Id.* at 10.

[103] *Id*.

[104] *See* RTCM Comments at 6.

[105] *See* MariTEL Comments at 7.

[106] *See id*.; MariTEL Reply Comments at 8.

[107] *See* 47 C.F.R. § 80.13(c).

even state or local government entities,[108] to operate such stations in the United States. Permitting non-Federal entities to control AIS base stations could potentially jeopardize maritime domain awareness and maritime safety by diffusing responsibility and accountability for AIS base station operations.

26. It follows from this determination – that only Federal entities should operate AIS base stations – that the Commission should not promulgate rules for the licensing and operation of AIS base stations.[109] The Commission is statutorily prohibited from licensing Federal Government radio stations.[110] There is likewise no reason for the Commission to adopt rules to govern the certification of AIS base station equipment, because the Commission plays no role in certifying equipment for Federal Government stations.[111] Although most commenters favor the international standard, IEC 62320-1, as the basis for equipment certification rules for AIS base stations,[112] the comments do not account for the fact that radiofrequency equipment used in Federal Government radio stations is subject to certification by NTIA, not the Commission.[113] In any event, we have no reason to expect that the Federal Government will employ AIS base station equipment that is not compatible with the international standards. We therefore decline to adopt any rules pertaining to the licensing, operation, or certification of equipment for AIS base stations.[114]

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[108] The comments of ACR Electronics and the Task Force could be construed as advocating that state or local government authorities, as well as Federal entities, be permitted to operate AIS base stations inasmuch as they refer, without further qualification, to "government agencies and port authorities responsible for waterway management." *See* ACR Electronics Comments at 2; Task Force Comments at 3. Our determination that only Federal entities should be responsible for operating AIS base stations does not necessarily preclude state or local entities, or even private sector entities, from participating in such operations subject to the oversight of the Federal Government. NTIA observes that an AIS base station serves as an aid to navigation, and therefore, pursuant to 14 U.S.C. § 83, the Coast Guard "could … allow the use of an AIS base station by a non-federal entity provided there is authorization by the Coast Guard providing that the operation of the AIS base station is, at all times, operated under the control of the federal entity." *See* NTIA Comments at 11 n.22. MariTEL recommends that the Commission develop "coordination procedures" to ensure that the Coast Guard puts into place a broad-based, non-discriminatory program for partnering with private sector entities in the operation of AIS base stations, one that would allow both commercial activities and a role in safety-related functions by such private sector entities. *See* MariTEL Comments at 7. While our decisions herein do not foreclose partnering arrangements of the sort contemplated by MariTEL, we do not find it necessary or appropriate for the Commission to impose "coordination procedures" on the Coast Guard, especially since the Coast Guard is subject to existing statutory and regulatory requirements pertaining to procurement and contracting. *See*, *e.g.*, 10 U.S.C. § 2305; 48 C.F.R. Part 3006.

[109] *See* NTIA Comments at 11.

[110] *See* 47 U.S.C. § 305(a).

[111] *See* NTIA Comments at 10 n.20; NTIA Manual Chapter 10.

[112] *See* IEC 62320-1, "Maritime navigation and radiocommunication equipment and systems - Automatic identification system (AIS) - Part 1: AIS Base Stations - Minimum operational and performance requirements, methods of testing and required test results," 2007-02.

[113] *See, e.g.*, ACR Electronics Comments at 2; RTCM Comments at 5; Task Force Comments at 3. We therefore also do not need to address Shine Micro's recommendation to adopt the IEC 62360-1 standard with a modified minimum sensitivity requirement. *See* Shine Micro Comments at 3. Nor, given our disposition of this issue, need we address MariTEL's argument that the Commission "should not incorporate any IEC base station standards into the FCC's rules until, based on rigorous demonstration, it is satisfied that those base stations will not cause harmful interference to, and receive interference from, VPC stations." *See* MariTEL Comments at 6.

[114] There may be some confusion as to what type of Commission authorization is needed for the on-land testing and installation of AIS equipment, given that AIS transmissions are authorized only under ship station licenses. *See, e.g.*, FCC File No. 0002791967 (application by Simrad Fisheries for waiver and special temporary authorization to (continued….)

C. Class B AIS Shipborne Equipment

27. The final set of issues presented in the *Further Notice* involved standards for certifying Class B AIS shipborne equipment, and further measures the Commission might adopt to ensure the accuracy of data transmitted from such devices.[115] As the Commission noted in the *Further Notice*, Class B AIS devices are generally intended for use by vessels that are not subject to a mandatory AIS carriage requirement, and provide a less expensive alternative to Class A devices to encourage voluntary AIS carriage.[116] For reasons discussed below, we conclude that we should base Part 80 certification of Class B AIS devices on compliance with the pertinent international standard for such devices, IEC 62287-1,[117] as proposed in the *Further Notice*.[118] We therefore add a new Section 80.231 and revise Section 80.1101(c)(12) of the Commission's Rules[119] to incorporate IEC 62287-1 by reference as the Commission standard for certifying Class B AIS equipment. As suggested by some commenters, however, we adopt additional requirements as safeguards to better ensure that Class B AIS devices will transmit accurate static data, including the correct Maritime Mobile Service Identity (MMSI) number.[120]

28. The commenters addressing this issue generally favor the Commission's proposal to incorporate by reference IEC 62287-1 as the standard for certifying Class B AIS equipment under Part 80.[121] As ACR Electronics explains, the incorporation by reference of IEC 62287-1 is the option most consistent with the paramount goals of this proceeding to facilitate speedy and widespread deployment of AIS equipment.[122] Given that, as ACR Electronics also notes, there currently is no alternative basis for certifying Class B AIS equipment,[123] rejection of IEC 62287-1 as the standard for certifying Class B AIS devices would necessitate the development of a different standard, which would result in a substantial and

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"operate a marine AIS system as a bench standard" on land). Given our determination not to license private sector entities to operate AIS base stations, we take this opportunity to clarify that maritime support stations are authorized to undertake on-land testing and installation of AIS equipment pursuant to Section 80.653(b)(2) of the Commission's Rules, 47 C.F.R. § 80.653(b)(2), and may transmit on Channels 87B and 88B for that purpose on a secondary, non-interference basis to operational maritime communications. *See* 47 C.F.R. § 80.655(a)(2), (b).

[115] *See Further Notice*, 21 FCC Rcd at 8935-36 ¶¶ 62-64.

[116] *Id*. at 8935 ¶ 62. For additional background information regarding Class B AIS equipment, *see* NTIA Comments at 11-12.

[117] *See* IEC 62287-1, "Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the automatic identification system – Part 1: carrier-sense time division multiple access (CSTDMA) techniques," 2006 (IEC 62287-1), available from http://www.iec.ch.

[118] *See Further Notice*, 21 FCC Rcd at 8936 ¶ 63.

[119] *See* 47 C.F.R. § 80.1101(c)(12).

[120] An MMSI number, also referred to simply as an MMSI, is a unique nine-digit number assigned to commercial and recreational vessels participating in the Global Maritime Distress and Safety System (GMDSS). The MMSI functions as a "phone number" for the vessel and must be programmed into the vessel's digital selective calling (DSC) radio. MMSIs are also used for AIS transponders.

[121] *See* ACR Electronics Comments at 2; Daugherty Comments at 1; NTIA Comments at 11-13; RTCM Comments at 7; Shine Micro Comments at 3-4; Task Force Comments at 3; USBI Comments at 1. In addition, NTIA and Shine Micro request that the Commission provide for the certification of Class B AIS devices as soon as possible to ensure that there is no undue delay in the domestic deployment of Class B AIS devices. *See* Shine Micro Comments at 4; NTIA Comments at 13.

[122] *See* ACR Electronics Comments at 2.

[123] *Id*.

unacceptable additional delay before Commission certification of Class B AIS devices could begin.[124] Further, reliance on the existing IEC standard will reduce the cost of Class B AIS devices, and thus promote voluntary AIS carriage.[125] It will also moot any concerns regarding interoperability of Class B AIS devices both domestically and on a worldwide basis.

29. We disagree with MariTEL's contention that the Commission should delay certifying Class B AIS equipment until the Commission determines whether IEC 62287-1 ensures that Class B AIS devices do not cause interference to VPC operations in adjacent spectrum.[126] The Commission already has determined, after reviewing an extensive record that included separate technical studies submitted by MariTEL and NTIA,[127] that "the interference impact of wideband simplex AIS on VPC operations can be effectively mitigated through commercially reasonable means,"[128] and MariTEL has not adduced any evidence to suggest that Class B AIS devices would pose a greater interference threat to VPC operations than Class A AIS devices, or that adopting rules for the certification of Class B AIS devices otherwise requires revisiting that earlier determination.[129] We find, in sum, that certification of Class B AIS equipment in accordance with the established international standard for such equipment would serve the public interest for the same reasons that underlie the Commission's earlier determination to certify Class A AIS equipment in accordance with the established Class A international standard.[130] We therefore amend our rules as proposed to incorporate by reference IEC 62287-1 as the standard for certifying Class B AIS equipment under Part 80.[131]

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[124] *See* NTIA Comments at 13.

[125] *See* ACR Electronics Comments at 2; *see also Fourth MO&O*, 21 FCC Rcd at 8937-38 ¶ 66 (adoption of a separate standard for Class A AIS equipment would increase the cost).

[126] *See* MariTEL Comments at 8; MariTEL Reply Comments at 8. MariTEL states that no other party has addressed this issue "because no other party is affected in the same way as MariTEL." *See* MariTEL Reply Comments at 8.

[127] *See Report and Order*, 21 FCC Rcd at 8909-14 ¶¶ 26-32.

[128] *Id*. at 8914 ¶ 32.

[129] MariTEL notes that the United States Congress passed legislation approving the transfer of one million dollars to NTIA, and authorizing the Coast Guard to expend those funds for further study of methods to ameliorate interference from Class B AIS devices to maritime data services with a throughput of greater than 19.2 kilobits per second. *See* MariTEL Comments at 8, *citing* Coast Guard and Maritime Transportation Act of 2006, P.L. 109-241, 120 Stat. 516, 546 § 419 (July 11, 2006). MariTEL further notes that "[t]he Coast Guard, despite MariTEL's urging, chose not to expend the funds necessary to address the issue." *Id*. MariTEL argues that "authorization of Class B devices, without the efforts contemplated by Congress, would be directly contrary to Congressional intent." *Id*. We are not persuaded by this argument because the legislation in question did not impose any conditions on the approval of Class B AIS equipment, or otherwise restrict the Commission's authority to act in this proceeding. Moreover, the statute did not mandate the expenditure of the appropriated funds, but merely authorized the use of those funds on a permissive basis at the discretion of the Coast Guard; it says that "the Secretary of the department in which the Coast Guard is operating … *may* transfer $1,000,000 …." (emphasis added).

[130] *See Fourth MO&O*, 21 FCC Rcd at 8937-38 ¶ 66.

[131] Shine Micro supports the incorporation by reference of IEC 62287-1 subject to its modification in several respects. *See* Shine Micro Comments at 3-4. To the extent Shine Micro seeks the addition of procedures for the proper programming of Class B AIS devices, we discuss the matter *infra*, at paragraphs 30-31. With respect to Shine Micro's other recommendations, we clarify, first, that we are *not* requiring a dedicated DSC receiver in Class B AIS devices as a prerequisite to certification, notwithstanding that IEC 62287-1 accords member Administrations the discretion to impose such a requirement, but we are requiring that functionality by using either a dedicated DSC receiver or by time sharing the TDMA channels. *See* IEC 62287-1 para. 6.1 & n. 3 (establishing a requirement for an integrated DSC receiver, but also providing that "[i]n some regions, the competent authority may not require (continued….)

30. We also agree in principle with those commenters who believe that the Commission should adopt additional measures, beyond reliance on IEC 62287-1, to ensure the accuracy of MMSIs and other static data programmed into Class B AIS devices.[132] We have reviewed the proposals to that end in the record, some of which are very detailed and extensive.[133] As discussed below, we adopt three measures to provide better assurance that Class B AIS devices will be programmed with the correct static data, and in particular the correct MMSI.[134] None of the measures we adopt conflicts with IEC 62287-1, and none should be burdensome for either equipment manufacturers or end users. It is unnecessary, and might be counterproductive, to prescribe more complicated processes, as some comments contemplate.

31. First, as urged by NTIA,[135] we prohibit any person from knowingly entering an incorrect MMSI or other static data in a Class B AIS device. Although this is a very basic measure, we think that it ensures and clarifies that the Commission may impose the full range of sanctions at its disposal for the willful or knowing entry of false data.[136] We would view any violations of this requirement as very serious, because the transmission of inaccurate static data could result in the misidentification of vessels, thus compromising the Coast Guard's ability to use AIS to full effect on behalf of its maritime domain awareness efforts. Second, we require that the static data, including MMSI, be entered by sellers and professional installers of Class B AIS devices, not the end users. As commenters note,[137] IEC 62287-1 prohibits end users from altering MMSIs, once programmed in the unit, but does not prohibit end users from entering the numbers initially.[138] Thus, this requirement would go further than IEC 62287-1 by requiring professional entry of the MMSI number at the point of sale or installation. NTIA proposes such

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DSC functionality"). This is consistent with the Coast Guard's position on this issue. *See* Coast Guard *Ex Parte* Letter at 2-3. In addition, we clarify that negative ground operation is permissible as a means to reduce costs, and that Software Link Layer testing may be performed by a capable test lab. *See id*. at 4; *see also* Coast Guard *Ex Parte* Letter at 3 (supporting these Shine Micro proposals). Finally, given our earlier determination, *see* n.61, *supra*, that Shine Micro's proposal to designate Channel 88B as the "preferred" long-range AIS tracking channel is outside the scope of this proceeding, we decline to "permit an 'AIS1ONLY' minimal Class B CS-TDMA transponder…." *See* Shine Micro Comments at 3-4.

[132] Static data refers to data that must be entered prior to or at the time of installation of the device, such as MMSI number, call sign, vessel name, and vessel dimensions.

[133] *See, e.g.*, Carver Comments at 2-4; Shine Micro Comments at Appendix A.

[134] We note that the same public interest considerations that militate in favor of adopting additional safeguards to better ensure the accuracy of the static data programmed in Class B AIS equipment might also support the adoption of such measures for Class A AIS equipment. Given that there was no discussion in the *Further Notice* of applying such measures to Class A AIS equipment, however, there is no record to support amending the rules to that end at this juncture. We would nevertheless consider extending to Class A AIS devices the three measures we are adopting herein to better ensure the accuracy of static data in Class B devices, or adopting other measures that could safeguard against the transmission of inaccurate static data from Class A devices, upon receiving an appropriate petition or request for such action, and we reserve discretion to propose such action *sua sponte*, should circumstances indicate that it would promote the public interest.

[135] *See* NTIA Comments at 14.

[136] Our authority in this regard is clear. *See, e.g*., 47 U.S.C. § 303(m)(1)(d)(1)-(2) (authorizing the Commission to suspend the license of any licensee who has knowingly transmitted "[f]alse or deceptive signals or communications," or a "call signal or letter which has not been assigned by proper authority to the station he is operating….").

[137] *See* RTCM Comments at 7 n.6; ACR Electronics Comments at 2.

[138] *See* IEC 62287-1 para. 6.7.2. IEC 62287-1 also specifies that Class B AIS devices may operate only in receive-only mode until the MMSI has been entered. *Id*. at para. 6.5.1.1.

a requirement,[139] and it is consistent with the comments of ACR Electronics, RTCM and the Task Force asking the Commission to require persons that sell and install Class B AIS units to ensure that the appropriate static data is entered, or at least to encourage them to enter the data themselves.[140] Third, and also as recommended by NTIA, as well as by RTCM,[141] we require manufacturers to include a conspicuous label on Class B AIS devices explaining how to enter and confirm static data, and warning that inputting an MMSI that has not been properly assigned to the end user, or otherwise entering any improper or inaccurate static data, is prohibited. Manufacturers also will be required to include this information in the user's manual. As RTCM notes, IEC 62287-1 contains only minimal guidance on the contents of manuals and user instructions, so adoption of this requirement does not conflict with the standard.[142] NTIA believes that these three measures together provide a significant safeguard to ensure that the static data transmitted from Class B AIS devices, particularly MMSIs, are accurate and reliable.[143] We therefore adopt these measures.[144] We also adopt our proposal, unopposed by any commenter, that applicants for Commission certification of a Class B AIS device first obtain Coast Guard certification of the device, consistent with the Commission's procedures for Class A AIS devices.[145]

32. Finally, we note that, while the *Further Notice* was pending, equipment manufacturers requested waivers to permit the authorization and use of Class B AIS transponders.[146] The Wireless

[139] NTIA proposes that "the MMSI be entered into the Class B AIS device prior to the time that the user takes possession of the device." *See* NTIA Comments at 15.

[140] *See* ACR Electronics Comment at 2; RTCM Comments at 7; Task Force Comments at 3.

[141] *See* NTIA Comments at 14-15; RTCM Comments at 7.

[142] *See* RTCM Comments at 7 n.5.

[143] In adopting these requirements, we attach significant weight to the fact that NTIA recommends these three additional safeguards regarding the accuracy of static data transmitted by Class B AIS devices, but does not recommend any further measures.

[144] We leave open the possibility of imposing additional requirements pertaining to MMSI assignments, data entry, or other matters pertaining to Class B AIS equipment, if future circumstances indicate that such action is warranted. We note, in this regard, that Shine Micro recommends that we also require that Class B AIS devices be programmed to transmit a unique Message 24 Part B 42-bit Vendor ID field, to be comprised of an 18-bit three-character ASCII symbol for the manufacturer's identity, to be assigned by the National Marine Electronics Association (NMEA) free of charge at the manufacturer's request; a 4-bit binary coded series number for the model; and a 20-bit Unit Serial Number. *See* Shine Micro Comments at Appendix A. The Coast Guard endorses this recommendation, noting that the IALA e-Navigation Committee has decided to recommend to the ITU that this requirement also be included in the ITU-R M.1371-3 standard. *See* Coast Guard *Ex Parte* Letter at 2. Such detailed requirements should not be prescribed by the Commission at this juncture, however. We think it is preferable to let the maritime community develop through consensus specific standards for the content and format of the information to be transmitted by Class B AIS devices. We note that nothing in the Commission's rules precludes implementation of Shine Micro's recommendation. As noted, moreover, the Commission can revisit this matter in the future if circumstances so dictate.

[145] *See Further Notice*, 21 FCC Rcd at 8950 Appendix C (proposed Section 80.231(b)-(d)); 47 C.F.R. § 80.275. NTIA states that, by requiring Coast Guard certification of the device prior to the filing of the application for Commission certification, "the integrity of the VHF data link will be maintained, and the Coast Guard will have the flexibility to ensure that the Class B AIS devices meet future security regulation." *See* NTIA Comments at 15.

[146] We have received waiver requests from ACR Electronics (File No. EA669653), Navico UK (File No. EA684983), SevenStar Electronics Ltd. (File No. EA370463), and Software Radio Technology, plc (File No. EA316380).

Telecommunications Bureau's Mobility Division sought comment on the waiver requests,[147] and the commenters support authorizing Class B AIS devices before the conclusion of this proceeding.[148] They assert that allowing voluntary vessels to fit the lower-cost Class B AIS devices as soon as possible will improve maritime security and safety of navigation.[149] We agree that it is in the public interest to allow the use of Class B devices prior to the effective date of the rules adopted herein. Therefore, we grant the waiver requests to the extent that we will certify Class B equipment that meets the requirements adopted in this *Second Report and Order* prior to the effective date of the new rules.[150]

IV. CONCLUSION

33. The potential benefits of AIS for maritime domain awareness and maritime safety can hardly be overstated. It is critical that the Commission take appropriate measures to facilitate and encourage the widespread implementation of AIS in all navigable waterways within the territorial jurisdiction of the United States, both coastal and inland. We adopt such measures here. The actions we take in this *Second Report and Order* in WT Docket No. 04-344 will permit the Coast Guard, other first responders, and the maritime community in general to reap, in full, the unique advantages that AIS offers for our Nation's safety and security, while ensuring that the United States remains a full partner in the seamless global AIS network that has emerged in recent years. We look forward to continuing to work with NTIA, the Coast Guard, and other stakeholders in the maritime community to ensure that advanced communications technologies are brought to bear in furtherance of our goal of promoting the safety of vessels, the integrity of marine environments, and the detection and defeat of waterborne terrorist threats.

V. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

34. As required by the Regulatory Flexibility Act (RFA),[151] the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA) of the rules adopted in this *Second Report and Order*. The FRFA for the *Second Report and Order* is contained in Appendix C. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Second Report and Order*, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. In addition, the Commission will send a copy of the *Second Report and Order*, including the FRFA, in a

[147] *See* Wireless Telecommunications Bureau Seeks Comment on Requests for Waiver to Permit Approval of Class B Automatic Identification System (AIS) Devices, *Public Notice*, WT Docket No. 04-344, 22 FCC Rcd 10949 (WTB MD 2007) (*Public Notice*). The Mobility Division noted that authorization and use of Class A devices had been permitted prior to the adoption of rules providing for such equipment. *See id.* at 10950, *citing* Applications for Equipment Authorization of Universal Shipborne Automatic Identification Systems to be Coordinated with U.S. Coast Guard to Ensure Homeland Security, *Public Notice*, 17 FCC Rcd 11983 (OET 2002).

[148] *See* Michael D. O'Dell Comments to *Public Notice*; ACR Electronics Comments to *Public Notice*; J.H. Daugherty Comments to *Public Notice*; Jon K. Hill Comments to *Public Notice*; Dan Gingras Comments to *Public Notice*; Negron Marine Consultants Inc. Comments to *Public Notice*; RTCM Comments to *Public Notice*; Task Force Comments to *Public Notice*; Coast Guard Comments to *Public Notice*; SevenStar Electronics LTD (SevenStar) Comments to *Public Notice*; United States Marine Safety Association (USMSA) Comments to *Public Notice*.

[149] *See*, *e.g.*, Task Force Comments to *Public Notice*; Coast Guard Comments to *Public Notice*; SevenStar Comments to *Public Notice*; USMSA Comments to *Public Notice*.

[150] This waiver applies to the pending requests and to any other requests for Class B certification received prior to the effective date of the new rules.

[151] *See* 5 U.S.C. § 604.

report to Congress pursuant to the Congressional Review Act.[152]

B. Peer Review Bulletin and Information Quality Act

35. The Commission conducted a peer review of a study on which this *Second Report and Order* relies in part, in compliance with the Peer Review Bulletin issued by the Office of Management and Budget (OMB).[153] The peer review report is discussed in this *Second Report and Order* in Section III.A.1.[154] All of the materials related to this peer review – the study, the charge statement, the peer review report, and the Commission staff response – are disseminated on the Commission's website.[155] This *Second Report and Order* also complies with the Information Quality Guidelines promulgated by the Commission.[156]

C. Congressional Review Act

36. The Commission will send a copy of this *Second Report and Order* in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

D. Paperwork Reduction Act

37. This document contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements contained in this proceeding. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might "further reduce the information collection burden for small business concerns with fewer than 25 employees."

38. In this present document, we have assessed the effects of establishing labeling requirements for manufacturers of Class B AIS devices, and find that the labeling requirements adopted herein would not impose an undue burden or excessive cost on such manufacturers, including those that have fewer than 25 employees. We also find that the public interest in ensuring that Class B AIS devices transmit accurate static data, including the correct MMSI number, which is the underlying purpose of the labeling requirements, outweighs the incremental compliance cost on manufacturers, including those that have 25 or fewer employees.

E. Further Information

39. For further information, contact Jeffrey Tobias, Mobility Division, Wireless Telecommunications Bureau, (202) 418-1617, or TTY (202) 418-7233, or via electronic mail at

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[152] *See* 5 U.S.C. § 801(a)(1)(A).

[153] *See* OMB Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664 (Jan. 14, 2005).

[154] *See* n.64, *supra*.

[155] *See* http://www.fcc.gov/omd/dataquality/peer-agenda.html.

[156] *See* In the Matter of Implementation of Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Pursuant to Section 515 of Public Law No. 105-554, 17 FCC Rcd 19890 (2002) (implementing OMB Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 67 Fed. Reg. 8452 (Feb. 22, 2002)). The Commission's Information Quality Guidelines are available at www.fcc.gov/omd/dataquality.

jeff.tobias@fcc.gov.

40. To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty). This *Report and Order* can also be downloaded at: http://www.fcc.gov/.

VI. ORDERING CLAUSES

41. Accordingly, IT IS ORDERED, pursuant to the authority of Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 403, that Parts 2, 80 and 90 of the Commission's Rules ARE AMENDED as set forth in the attached Appendix B, effective thirty days after publication in the Federal Register.

42. IT IS FURTHER ORDERED that, pursuant to Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r) and 403, this *Second Report and Order* in WT Docket No. 04-344 IS HEREBY ADOPTED.

43. IT IS FURTHER ORDERED that the late-filed comments of Chris Carver, J.H. Daugherty II, and the National Telecommunications and Information Administration ARE ACCEPTED.

44. IT IS FURTHER ORDERED that the Motion to Strike the reply comments filed by Warren Havens, Telesaurus VPC LLC, Telesaurus Holdings GB LLC, AMTS Consortium LLC, and Intelligent Transportation & Monitoring Wireless LLC, filed by MariTEL, Inc. on December 21, 2006, IS GRANTED.

45. IT IS FURTHER ORDERED that new applications to use Channel 84 (157.225/161.825 MHz) or 85 (157.275/161.875 MHz) pursuant to Part 90 of the Commission's Rules SHALL NOT BE ACCEPTED as of the release date of this *Second Report and Order*.

46. IT IS FURTHER ORDERED that the requests for waiver filed by ACR Electronics, Navico UK, SevenStar Electronics Ltd., and Software Radio Technology, plc ARE GRANTED to the extent described in paragraph 32, *supra*, and the Part 80 Rules ARE WAIVED to the extent necessary to permit the certification of Class B AIS equipment pursuant to the rules adopted herein prior to the effective date of those rules.

47. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Second Report and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

48. IT IS FURTHER ORDERED that the proceeding in WT Docket No. 04-344 IS TERMINATED.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Commenting Parties

Comments:

ACR Electronics, Inc. (ACR Electronics)
American Pilots' Association (APA)
American Waterways Operators (AWO)
Carver, Chris (Carver)
Daugherty, J.H., II (Daugherty)
International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)
MariTEL, Inc. (MariTEL)
National Telecommunications and Information Administration (NTIA)
Nautical Institute, The (NI)
ORBCOMM, Inc. (ORBCOMM)
Radio Technical Commission for Maritime Services (RTCM)
Shine Micro, Inc. (Shine Micro)
Task Force for the Implementation of the Global Maritime Distress and Safety System (GMDSS) (Task Force)
United States Boating Institute, The (USBI)

Reply Comments:

MariTEL
ORBCOMM
PacifiCorp

APPENDIX B

Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 C.F.R. parts 2, 80 and 90 as follows:

I. PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

The authority citation for part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

1. Section 2.106, the Table of Frequency Allocations, footnote US399 is amended as follows:

§ 2.106 Table of Frequency Allocations.

UNITED STATES (US) NOTES

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US399 The frequency bands 161.9625-161.9875 MHz (AIS 1 with its center frequency at 161.975 MHz) and 162.0125-162.0375 MHz (AIS 2 with its center frequency at 162.025 MHz) are allocated to the maritime mobile service on a primary basis for Federal Government and non-Federal Government use, and shall be used exclusively for Automatic Identification Systems (AIS). However, in VHF Public Coast Service Areas (VPCSAs) 1-9, site-based stations licensed prior to November 13, 2006, may continue to operate on a co-primary basis in the frequency band 161.9625-161.9875 MHz until expiration of the license term for licenses in active status as of November 13, 2006. Also, in VPCSAs 10-42, site-based stations licensed in the frequency band 161.9625-161.9875 MHz prior to **[INSERT EFFECTIVE DATE]** may remain authorized to operate on a co-primary basis in that frequency band until **[INSERT DATE FIFTEEN YEARS AFTER EFFECTIVE DATE]**, and geographical stations licensed in the frequency band 161.9625-161.9875 MHz prior to **[INSERT EFFECTIVE DATE]** may continue to operate on a co-primary basis in that frequency band until **[INSERT DATE TWO YEARS AFTER EFFECTIVE DATE]**. See 47 CFR § 80.371(c)(1)(ii) for the definitions of VPCSAs, and geographic license.

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II. PART 80 -- STATIONS IN THE MARITIME SERVICES

2. The authority citation for Part 80 continues to read as follows:

AUTHORITY: Secs. 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-155, 301-609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

3. Part 80 is amended by adding Section 80.231 to read as follows:

§ 80.231 Technical Requirements for Class B Automatic Identification System (AIS) equipment.

(a) Class B Automatic Identification System (AIS) equipment must meet the technical requirements of the International Electro-technical Commission (IEC) 62287-1 International Standard, "Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the Automatic Identification System – Part 1: Carrier – sense time division multiple access (CSTDMA)

techniques," 2006. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of this standard can be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC (Reference Information Center) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.* IEC publications can be purchased from the International Electro-technical Commission, 3 Rue de Varembe, CH-1211 Geneva 20, Switzerland, or from the American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036, telephone (212) 642-4900.

(b) In addition to the labels or other identifying information required under §§ 2.925 and 2.926 of this chapter, each Class B AIS device shall include a conspicuous label that includes: (i) instructions on how to accurately enter into the device and confirm static data pertaining to the vessel in which the device is or will be installed; and (ii) the following statement: "WARNING: It is a violation of the rules of the Federal Communications Commission to input an MMSI that has not been properly assigned to the end user, or to otherwise input any inaccurate data in this device." Instructions on how to accurately enter and confirm static data in the device shall also be included in the user's manual for the device. The entry of static data into a Class B AIS device shall be performed by the vendor of the device or by an appropriately qualified person in the business of installing marine communications equipment on board vessels. In no event shall the entry of static data into a Class B AIS device be performed by the user of the device or the licensee of a ship station using the device. Knowingly programming a Class B AIS device with inaccurate static data, or causing a Class B AIS device to be programmed with inaccurate static data, is prohibited.

(c) Prior to submitting a certification application for a Class B AIS device, the following information must be submitted in duplicate to the Commandant (CG-521), U.S. Coast Guard, 2100 2nd Street, S.W., Washington, DC 20593-0001:

(1) The name of the manufacturer or grantee and the model number of the AIS device; and

(2) Copies of the test report and test data obtained from the test facility showing that the device complies with the environmental and operational requirements identified in IEC 62287-1.

(d) After reviewing the information described in paragraph (c) of this section, the U.S. Coast Guard will issue a letter stating whether the AIS device satisfies all of the requirements specified in IEC 62287-1.

(e) A certification application for an AIS device submitted to the Commission must contain a copy of the U.S. Coast Guard letter stating that the device satisfies all of the requirements specified in IEC 62287-1, a copy of the technical test data, and the instruction manual(s).

4. Section 80.275 is amended by revising the title and paragraph (a) to read as follows:

§ 80.275 Technical Requirements for Class A Automatic Identification System (AIS) equipment.

(a) Prior to submitting a certification application for a Class A AIS device, the following information must be submitted in duplicate to the Commandant (G–PSE), U.S. Coast Guard, 2100 2nd Street, S.W., Washington DC 20593–0001:

* * * * *

5. Section 80.371 is amended by removing the column titled "Frequency pairs not available for

assignment" in the table in paragraph (c)(1)(ii), and revising paragraphs (c)(1)(i) and (c)(3) to read as follows:

* * * * *

§ 80.371 Public correspondence frequencies.

(c) Working frequencies in the marine VHF 156-162 MHz band. (1)(i) The frequency pairs listed in this paragraph are available for assignment to public coast stations for communications with ship stations and units on land.

Working Carrier Frequency Pairs in the 156-162 MHz Band [1]

Channel designator	Carrier Frequency (MHz)	
	Ship Transmit	Coast Transmit
24……..	157.200	161.800
84……..	157.225	161.825
25[5]……..	157.250	161.850
85[2]…….	157.275	161.875
26……..	157.300	161.900
86……...	157.325	161.925
27……...	157.350	161.950
87[3] ……...	157.375	161.975
28……...	157.400	162.000
88[4]……..	157.425	162.025

[1] For special assignment of frequencies in this band in certain areas of Washington State, the Great Lakes and the east coast of the United States pursuant to arrangements between the United States and Canada, see subpart B of this part.

[2] The frequency pair 157.275/161.875 MHz is available on a primary basis to ship and public coast stations. In Alaska it is also available on a secondary basis to private mobile repeater stations.

[3] The frequency 161.975 MHz is available only for Automatic Identification System communications. No license authorizing a site-based VHF Public Coast Station or a Private Land Mobile Radio Station to operate on the frequency 161.975 MHz will be renewed unless the license is or has been modified to remove frequency 161.975 MHz as an authorized frequency. Licenses authorizing geographic stations to operate on frequency 161.975 MHz will be modified on **[INSERT DATE TWO YEARS AFTER EFFECTIVE DATE]** to replace the frequency with either frequency pair 157.225/161.825 MHz (VPCSAs 10-15, 23-30, 33-34, 36-39, and 41-42) or frequency pair 157.275/161.875 MHz (VPCSAs 16-22, 31-32, 35, and 40), unless an application to so modify the license is granted before that date.

[4] The frequency 162.025 MHz is available only for Automatic Identification System communications. One hundred twenty kilometers (75 miles) from the United States/Canada border, the frequency 157.425 MHz is available for intership and commercial communications. Outside the Puget Sound area and its approaches and the Great Lakes, 157.425 MHz is available for communications between commercial fishing vessels and associated aircraft while engaged in commercial fishing activities.

[5] In VPCSAs 10-42, the working carrier frequency pair 157.250/161.850 MHz (Channel 25) is not available for assignment under Part 80.

* * * * *

(ii) Service areas in the marine VHF 156-162 MHz band are VHF Public Coast Service Areas (VPCSAs). As listed in the table in this paragraph, VPCSAs are based on, and composed of one or more of, the U.S. Department of Commerce's 172 Economic Areas (EAs). See 60 FR 13114 (March 10, 1995). In addition, the Commission shall treat Guam and the Northern Mariana Islands, Puerto Rico and the United States Virgin Islands, American Samoa, and the Gulf of Mexico as EA-like areas, and has assigned them EA numbers 173-176, respectively. Maps of the EAs and VPCSAs are available for public inspection and copying at the FCC Public Reference Room, Room CY-A257, 445 12th Street, SW., Washington, DC 20554. In addition to the EAs listed in the table in this paragraph, each VPCSA also includes the adjacent waters under the jurisdiction of the United States. In VPCSAs 10-42, the working carrier frequency pair 157.250 MHz/161.850 MHz (Channel 25) is not available for assignment under Part 80.

(3) VPCSA licensees may not operate on Channel 228B (162.0125 MHz), which is available for use in the Coast Guard's Ports and Waterways Safety System (PAWSS). In addition, VPCSA licensees may not operate on Channel AIS 1 (161.975 MHz) or Channel AIS 2 (162.025 MHz), which are designated exclusively for Automatic Identification Systems (AIS), except to receive AIS communications to the same extent, and subject to the same limitations, as other shore stations participating in AIS. See note 3 to the table in paragraph (c)(1) of this section regarding use of Channel AIS 1 by VPCSA licensees in VPCSAs 10-42.

* * * * *

6. Section 80.393 is amended by inserting the heading AIS STATIONS immediately above Section 80.393 and by revising the section to read as follows:

§ 80.393 Frequencies for AIS stations.

Automatic Identification Systems (AIS) are a maritime broadcast service. The simplex channels at 161.975 MHz (AIS 1) and 162.025 MHz (AIS 2), each with a 25 kHz bandwidth, may be authorized only for AIS. In accordance with the Maritime Transportation Security Act, the United States Coast Guard regulates AIS carriage requirements for non-Federal Government ships. These requirements are codified at 33 CFR §§ 164.46, 401.20.

7. Section 80.1101 is amended by adding paragraph (c)(12)(vi) to read as follows:

§ 80.1101 Performance standards.

* * * * *

(c) * * *

(12) * * *

(vi) with respect to Class B AIS devices only, IEC 62287-1 International Standard, "Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the Automatic Identification System – Part 1: Carrier – sense time division multiple access (CSTDMA) techniques," 2006.

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III. PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

The authority citation for Part 90 continues to read as follows:

AUTHORITY: Secs. 4(i), 11, 303(g), 303(r) and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7.

8. Section 90.20 is amended by removing paragraphs (g)(3) and (g)(4), redesignating paragraph (g)(5) as (g)(3), and revising paragraphs (g), (g)(2) and redesignated paragraphs (g)(3)(i), (g)(3)(ii), (g)(3)(iii)(B), (g)(3)(iii)(D), and (g)(3)(vi) to read as follows:

§ 90.20 Public safety pool.

* * * * *

(g) Former public correspondence working channel in the maritime VHF (156-162 MHz) band allocated for public safety use in 33 inland Economic Areas.

(1) * * *

(2) In VHF Public Coast Service Areas (VPCSAs) 10-42, the duplex channel pair 157.250 MHz/161.850 MHz (VHF Maritime Channel 25) is allocated for public safety use by entities eligible for licensing under paragraph (a) of this section, and is designated primarily for the purpose of interoperability communications. See 47 CFR § 80.371(c)(1)(ii) for the definitions of VPCSAs.

(i) The channel pair 157.250 MHz/161.850 MHz was formerly allocated and assigned (under § 80.371(c) (1997) of this chapter) as a public correspondence working channel in the maritime VHF 156-162 MHz band, and was also shared (under former § 90.283 (1997) of this chapter) with private land mobile stations, including grandfathered public safety licensees. Thus, there are grandfathered licensees nationwide (maritime and private land mobile radio stations, including by rule waiver) operating on this channel both inside and outside of VPCSAs 10-42.

(ii) The channel pairs 157.225 MHz/161.825 MHz and 157.275 MHz/161.875 MHz were formerly allocated and assigned under this section as public safety interoperability channels but were reallocated for assignment as VHF public coast station channels under § 80.371(c) of this chapter. Public safety operations licensed on these channels as of **[INSERT EFFECTIVE DATE]** or licensed pursuant to an application filed prior to **[INSERT RELEASE DATE OF THIS ORDER]** may remain authorized to operate on the channels on a primary basis until **[INSERT DATE FIFTEEN YEARS AFTER EFFECTIVE DATE]**.

(3) * * *

(i) Provide evidence of frequency coordination in accordance with § 90.175. Public safety coordinators except the Special Emergency Coordinator are certified to coordinate applications for the channel pair 157.250 MHz/161.850 MHz (i.e., letter symbol PX under paragraph (c)(2) of this section).

(ii) Station power, as measured at the output terminals of the transmitter, must not exceed 50 Watts for base stations and 20 Watts for mobile stations, except in accordance with the provisions of paragraph (g)(3)(vi) of this section. Antenna height (HAAT) must not exceed 122 meters (400 feet) for base stations and 4.5 meters (15 feet) for mobile stations, except in accordance with paragraph (g)(3)(vi) of this section. Antenna height (HAAT) must not exceed 122 meters (400 feet) for base stations and 4.5 meters (15 feet) for mobile stations, except in accordance with paragraph (g)(3)(vi) of this section. Such base and mobile channels shall not be operated on board aircraft in flight.

(iii) * * *

(B) Protect stations described in paragraph (g)(2)(i) of this section, by frequency coordination in accordance § 90.175 of this part.

* * * * *

(C) * * *

(D) Where the Public safety designated channel is not a Public safety designated channel in an adjacent VPCSA: Applicants shall engineer base stations such that the maximum signal strength at the boundary of the adjacent VPCSA does not exceed 5 dBμV/m.

(vi) Applicants seeking to be licensed for stations exceeding the power/antenna height limits of the table in paragraph (g)(3)(iv) of this section must request a waiver of that paragraph and must submit with their application an interference analysis, based upon an appropriate, generally-accepted terrain-based propagation model, that shows that co-channel protected entities, described in paragraph (g)(3)(iii) of this section, would receive the same or greater interference protection than the relevant criteria outlined in paragraph (g)(3)(iii) of this section.

* * * * *

APPENDIX C

Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[157] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Further Notice of Proposed Rule Making* in this proceeding (*Further Notice*).[158] The Commission sought written public comment on the proposals in the *Further Notice*, including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[159]

A. Need for, and Objectives of, the Second Report and Order

The rules adopted in the *Second Report and Order* are intended to facilitation the implementation of maritime Automatic Identification Systems (AIS) in the United States and its territorial waters. AIS is an important tool for enhancing maritime safety and homeland security. In the *Second Report and Order*, we designate VHF maritime Channels 87B and 88B for exclusive AIS use in inland VHF Public Coast service areas (VPCSAs) because such designation will best ensure that the United States can maximize the maritime safety and homeland security benefits of AIS. The exclusive use of VHF maritime Channel 87B for AIS in inland waterways will, *inter alia*, provide an important navigational tool to guide vessels traveling on inland rivers and lakes, avoid the problems that would inhere in requiring vessels to switch AIS channels when transiting an AIS "fence" between maritime VPCSAs and inland VPCSAs, facilitate speedy AIS deployment using existing technical standards and infrastructure, and prevent co-channel interference to AIS operations not only in inland waterways but also in coastal and international waters.[160] The *Second Report and Order* also concludes that AIS base stations should be operated only by Federal entities, and, as a consequence, that the Commission need not adopt any rules pertaining to AIS base station equipment certification, licensing or operation.[161] Finally, the Commission adopts rules for the certification of Class B AIS devices, incorporating by reference the applicable international standard as the basis for such certification, while also adopting additional measures to better ensure that Class B AIS devices transmit accurate static data.[162]

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

No comments were submitted specifically in response to the IRFA. However, one of the commenters, MariTEL, Inc. (MariTEL), contends that the Commission should not designate Channel 87B for AIS in inland VPCSAs, should not adopt rules based on international standards for the certification of AIS base station equipment, and should not authorize Class B AIS devices pursuant to the international standards, because such measures would cause interference to VHF Public Coast (VPC) stations operating

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[157] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[158] *See* Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems, *Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion and Order*, WT Docket No. 04-344, 21 FCC Rcd 8892, 8958 (2004) (*Further Notice*).

[159] *See* 5 U.S.C. § 604.

[160] *See* paras. 8-16, *supra*.

[161] *See* paras. 22-26, *supra*.

[162] *See* paras. 27-31, *supra*.

on adjacent channels. As discussed in detail in Section E of this FRFA, we have considered the potential economic impact on small entities of these rules, and we have considered alternatives that would reduce the potential economic impact on small entities of the rules enacted herein, regardless of whether the potential economic impact was discussed in any comments.

C. Description and Estimate of the Number of Small Entities to Which Rules Will Apply

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[163] The RFA defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[164] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[165] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[166]

Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category "Cellular and Other Wireless Telecommunications," which is 1,500 or fewer employees.[167] Between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast (VPC) licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a "small" business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed fifteen million dollars. In addition, a "very small" business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed three million dollars.[168] There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as "small" businesses under the above special small business size standards.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

The rule amendments adopted in the *Second Report and Order* impose new compliance burdens on manufacturers and vendors of Class B AIS devices by requiring that such devices comply with the international standard for Class B AIS equipment, IEC 62287-1, in order to be certified by the

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[163] 5 U.S.C. § 603(b)(3).

[164] 5 U.S.C. § 601(6).

[165] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[166] Small Business Act, 15 U.S.C. § 632 (1996).

[167] 13 C.F.R. § 121.201, NAICS code 517212 (2002).

[168] Amendment of the Commission's Rules Concerning Maritime Communications, *Third Report and Order and Memorandum Opinion and Order*, PR Docket No. 92-257, 13 FCC Rcd 19853 (1998).

Commission for use in the United States, and by requiring that static data be entered into Class B AIS equipment only by the vendor or installer. The rule amendments adopted in the *Second Report and Order* also impose requirements for the professional installation and labeling of Class B AIS devices to better ensure the accuracy of the static data transmitted from such devices.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

The RFA requires an agency to describe any significant alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities."[169]

In the IRFA for the *Further Notice*, the Commission described, and sought comment on, possible alternatives to the rule amendments under consideration in the *Further Notice* that might minimize the economic impact on small entities.[170] Specifically, the Commission asked interested parties, and in particular inland VPCSA licensees, to provide information on the potential impact on inland VPCSA licensees of designating Channel 87B for AIS use exclusively throughout the Nation. To the extent that commenters foresaw such an impact, they were invited to suggest alternatives that would minimize or eliminate any adverse effect on small entities. It was noted, for example, that commenters could suggest that inland VPCSA licensees be accorded treatment similar to that which was accorded to site-based incumbent licensees, permitting them to continue to operate on Channel 87B on a shared basis with AIS for the remainder of their current license terms, but with no opportunity for renewal of the licenses. Commenters were also invited to address the possibility of migrating such licensees to different channels if such were available.[171]

In the *Further Notice*, comment was also invited on rules to govern AIS base stations, including certification standards for AIS base station equipment.[172] In the absence of specific proposals, the Commission invited interested parties to consider generally whether any special measures should be adopted in the AIS base station rules to prevent a significant adverse impact on small entities. Parties providing such comments were asked to address the extent to which they believe small entities may seek to become AIS base station licensees.[173]

Finally, the Commission requested comment in the *Further Notice* on the Commission's proposal to incorporate by reference IEC 62287-1 as the standard for certifying Class B AIS devices under Part 80 of the Commission's rules.[174] The Commission stated that incorporating by reference the international standard for Class B AIS devices would reduce costs to manufacturers by eliminating the possible need to design devices to two potentially conflicting standards, and would reduce costs to users of the devices

[169] 5 U.S.C. § 603(c)(1)-(4).

[170] *See Further Notice*, 21 FCC Rcd at 8959-60.

[171] *Id*. at 8960.

[172] *Id.*

[173] *Id*.

[174] *Id*.

both from a pass-through of manufacturers' cost savings and by eliminating the possible need to fit their vessels with more than one Class B AIS device if they travel outside U.S. territorial waters, *i.e.*, removing the need to carry one Class B AIS device to function within U.S. territorial waters, and another Class B AIS device to function in international waters or other nations' territorial waters. The Commission noted, in addition, that Class B AIS devices are intended generally for use on vessels that are not required by law to carry AIS devices. Since carriage of Class B AIS devices is voluntary, the establishment of standards for certifying such devices should not impose a new compliance burden on vessel operators. However, to the extent that any commenters believed that the establishment of equipment certification standards for Class B AIS devices might impose a significant new compliance burden on any small entities, the Commission invited those commenters to suggest alternative or complementary approaches that might reduce or eliminate that burden, including, but not limited to, the establishment of less rigorous standards, or the provision of exemptions or grandfathering protection for small entities.[175]

Although we received no comments specifically addressed to the IRFA for the *Further Notice*, we have considered all comments to the *Further Notice* addressing the impact of any proposed change on small entities and all suggestions for alternative measures that would have a less significant impact on small entities. For reasons discussed below, we conclude that the rule changes adopted in the *Second Report and Order* will not impose undue compliance burdens on small entities.

In order to avoid the disruption of VPC station operations in inland VPCSAs that might otherwise stem from the designation of Channel 87B for exclusive AIS use in the inland VPCSAs, we have provided the licensees of those stations with both a significant transitional period to adjust to the loss of Channel 87B, as well as a replacement channel. Specifically, we have provided that site-based licensees operating on Channel 87B in inland areas may continue to use that channel for fifteen years after the effective date of these rule changes, and that geographic licensees operating on Channel 87B in inland VPCSAs may continue to operate on the channel for a period of two years following the effective date of these rule amendments.[176] In addition, in each inland VPCSA, we are making a duplex channel pair, either Channel 84 or Channel 85, depending on the inland VPCSA, available for VPC use by the geographic licensee as a replacement for Channel 87B.[177] Channel 84/85 will be made available immediately upon the effective date of these rule amendments; thus, licensees will be able to operate on either Channel 84/85 or Channel 87B for a significant period of time, allowing migration of existing users of Channel 87B to alternative spectrum without disruption of existing operations on Channel 87B. In addition, the only commenter opposing the designation of Channel 87B for AIS use in inland VPCSAs has indicated that the redesignation of Channel 84/85 for VPC use could suffice to compensate licensees for the loss of use Channel 87B.[178]

We have determined not to adopt rules for the certification of AIS base station equipment, or for the licensing and operation of AIS base stations, because AIS base stations perform critical maritime safety and homeland security functions, and should therefore be controlled only by Federal entities.[179] Accordingly, there is no present need to further consider how such rules might affect small entities.

In addition, we continue to find, for the reasons stated in the IRFA accompanying the *Further Notice*, that adopting rules for the certification of Class B AIS devices based on the international standard,

[175] *Id*.

[176] *See* paras. 20-21, *supra*.

[177] *Id.*

[178] *See* para. 19, *supra*.

[179] *See* paras. 25-26, *supra*.

IEC 62287-1, will benefit the manufacturers of such devices, including small entities, because manufacturers would have to manufacture Class B AIS devices in accordance with that standard in any event to serve vessels traveling outside U.S. territorial waters. Adoption of a different standard incompatible with IEC 62287-1 would increase costs of manufacturing Class B AIS equipment by requiring that such equipment conform to both standards. Those costs would be passed on to consumers, and it is even possible that establishment of a U.S.-specific standard for Class B AIS devices would compel vessel owners and operators, including recreational boaters, to purchase and install two separate Class B AIS devices. Adoption of a different standard would also delay domestic deployment of Class B AIS equipment because no such accepted alternative standard currently exists. Finally, we note that the manufacturers addressing this issue all support the incorporation by reference of IEC 62287-1.[180]

Finally, we have also determined in the *Second Report and Order* to impose additional requirements pertaining to the labeling, sale, installation and operation of Class B AIS equipment.[181] Specifically, we have adopted rules that: (a) prohibit any person from entering an incorrect MMSI or other static data in a Class B AIS device; (b) require that sellers and professional installers of Class B AIS devices, not the end users, enter the static data; and (c) require affixation on a Class B AIS device of a conspicuous label explaining how to enter and confirm static data, and warning that it is a violation of the Commission's rules to input an MMSI that has not been properly assigned to the end user, or to otherwise enter any improper or inaccurate static data, and to provide this same information in the user's manual. These provisions do not impose a significant compliance burden on manufacturers, vendors or users of Class B AIS equipment. In any event, we do not see any alternative that would permit differential application of these requirements on small entities without undermining the purpose of these requirements, to promote homeland security and maritime safety by ensuring that Class B AIS devices transmit accurate static data.

F. Report to Congress

The Commission will send a copy of this *Second Report and Order* in WT Docket No. 04-344, including the Final Regulatory Flexibility Analysis, in a report to be sent to Congress pursuant to the Congressional Review Act.[182] In addition, the Commission will send a copy of the *Second Report and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the SBA. A copy of the *Second Report and Order* and the Final Regulatory Flexibility Analysis (or summaries thereof) will also be published in the Federal Register.[183]

[180] *See* para. 28, *supra*.

[181] *See* paras. 30-31, *supra*.

[182] *See* 5 U.S.C. § 801(a)(1)(A).

[183] *See id*. § 604(b).